

# Federal Laboratories & State and Local Governments



*Partners for Technology Transfer Success*

1001 Connecticut Ave., NW, Suite 735  
Washington, DC 20036  
202-296-7201  
*www.federallabs.org*

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# Partnering with State and Local Governments

It has long been the policy of the federal government to ensure full use of the nation's investment in research and development. One practical approach to this challenge is to encourage collaborations and partnerships between federal laboratories and state and local governments.

The Federal Laboratory Consortium for Technology Transfer (FLC) was established and tasked by federal legislation to assist and encourage state and local governments and regional organizations, such as small business development centers and Chambers of Commerce, to participate in—and benefit from—the technology transfer process with federal laboratories.

The FLC's State and Local Government Committee ensures that state and local government organizations are aware of the benefits available to them and their regions through technology transfer partnerships and collaborations with federal laboratories.

This brochure highlights some of the successful technology transfer collaborations between state and local governments and federal laboratories. Such collaborations demonstrate the accomplishments that are possible when state and local government organizations take advantage of the opportunities available through technology transfer partnerships with federal laboratories. The message is simple—collaboration with federal laboratories is a good way to do business.

Belinda Padilla

A handwritten signature in black ink, appearing to read 'B Padilla', written in a cursive style.

FLC State and Local Government Committee Chair

# NREL Co-founds Colorado Collaboratory to Spur Renewable Energy Industry Growth

Performing world-class research on renewable energy is one thing. Transferring that research to the private sector in a timely manner is another. The Colorado Renewable Energy Collaboratory is doing both.

The National Renewable Energy Laboratory (NREL) helped create the Collaboratory in February 2007 in association with the University of Colorado at Boulder (CU), the Colorado School of Mines, and Colorado State University (CSU). Hailed by Colorado Governor Bill Ritter as an economic boon, the Collaboratory has also been recognized by the Metro Denver Economic Development Corporation for its outstanding efforts in economic development.

Working with public, private, and nonprofit entities, the Collaboratory aims to:

- Increase the production and use of energy from renewable resources
- Support economic growth in Colorado and the nation with renewable energy industries
- Build a renewable energy economy in rural Colorado and rural America
- Establish Colorado as America's leading center of energy research and production

- Educate the nation's energy researchers, technicians, and workforce.

In 2006, the Colorado legislature approved \$2 million per year for three years for the Collaboratory to use as matching funds to qualify for federal and private research projects. The funding must be repaid to the state by income earned from the technologies developed and transferred to private industry.

So far, the Collaboratory has created three research centers.

- The Colorado Center for Biorefining and Biofuels (C2B2) will conduct research on new biofuels and biorefining technologies, and quickly transfer the results to the marketplace. Companies participate in C2B2 by paying a membership fee. These fees will fund shared research, and sponsors may participate in the discoveries and patents generated by that research.
- The Center for Revolutionary Solar Photoconversion (CRSP) will perform research on converting the sun's energy to low-cost electricity and fuels. The Collaboratory's four institutions will conduct the research, with participation from 12 founding

*“The Collaboratory deserves this honor. In a relatively short time, [it] has mobilized our new energy expertise housed at our excellent institutions and is delivering results.”* - Colorado Governor Bill Ritter

companies—Applied Materials, Ascent Solar Technologies, DuPont, Evident Technologies, Konarka, Lockheed Martin, Motech Industries, QuantumSphere, Sharp, Solasta, Sub-One Technology, and SunEdison—and other companies that have joined since the center was established.

- The Center for Research and Education in Wind (CREW) was established by the four core Collaboratory institutions and two federal research institutions: the National Center for Atmospheric Research and the National Oceanic and Atmospheric Administration. Led by CU, CREW’s research will focus on wind turbines, forecasting, and control systems.

Several more centers are being planned, the first of which is the Solar Technology Acceleration Center. This demonstration, test, and research center will be directed toward near-term technologies and improvements in photovoltaics and solar power.

In June 2008, the Collaboratory received the Metro Denver Economic Development Corporation’s Chair Award for Outstanding Efforts in Economic Development.

*More info:* Theresa von Kuegelgen, [theresa\\_von\\_kuegelgen@nrel.gov](mailto:theresa_von_kuegelgen@nrel.gov)



# Sandia Licenses Improved Flash-Bang Technology

Sandia National Laboratories recently licensed its safer fuel air diversionary device technology to Defense Technology Corporation of America, located in Casper, Wyo.

Diversionary devices—also called stun grenades or flash-bangs—are a less-than-lethal device used in a wide variety of law enforcement and military operations. Like a grenade, the device is activated by pulling a pin. When thrown, the flash-bang creates a loud sound and bright flash of light to temporarily distract or disorient an adversary.

Flash-bangs are used in law enforcement and military operations such as hostage rescue, room-clearing, crowd control and other specialized operations. Military or law enforcement personnel will typically break down a door or smash a window of a building and toss in the diversionary device during a forced entry.

More than 20 years ago, Paul Cooper and Ed Graeber, both now retired from Sandia, created the original Mk 141 flash-bang diversionary device, which was intended for limited (and specialized) applications.

It was state-of-the-art for its day. Paul's protégé, Mark Grubelich, built on that original groundbreaking work and came up with an improved flash-bang—one far safer for law enforcement and the military.

“Flash-bangs that use existing pyrotechnic technology function like an explosive device—once ignited, a ‘flash powder’ mixture of aluminum and potassium perchlorate powders quickly reacts, resulting in an explosive output,” Grubelich said. “They function like any other explosive device, but without any shrapnel, just a flash and a bang.”

Like any other explosive device, flash-bangs can be damaged in the field, poorly manufactured, or incorrectly deployed. With the older pyrotechnic technology employed by the previous generation of flash-bangs, any of these types of problems can result in serious injuries.

“There are a number of disadvantages associated with currently available diversionary devices,” said Grubelich. “Serious injuries have resulted from their improper use, both operationally and in training.” Because safety is of paramount importance, the new fuel air technology was developed to address the issues associated with the severe overpressure produced in the field of older-style diversionary devices.

This new diversionary device produces a dust explosion on a very small scale—a gas generator rapidly ejects and ignites aluminum powder. That deflagrating cloud of burning aluminum powder provides an intensely bright light and an “ex-



*“Sandia looks forward to Defense Technology making a safer device available to the military and to law enforcement agencies all over the country.”*

- Mark Grubelich

plosive” noise. The body of the diversionary device itself does not explode, making the operation safer for the person deploying the item and for anyone in the area. This lessens the likelihood of injury and the severity of the consequences should a mishap occur.

Grubelich recently appeared on the History Channel series “Modern Marvels,” where he demonstrated the device and explained how the improved technology functioned.

“The new flash-bang can be made into many body styles appropriate for fielding by the military and law enforcement for a variety of applications,” said Grubelich. Economical and refillable versions can be made for training purposes.

A heavier version of the flash-bang could also allow it to be thrown through windows.

The technology was originally licensed in 2002 to a different company, but the licensee failed to bring the product to market. “Sandia looks forward to Defense Technology making a safer device available to the military and to law enforcement agencies all over the country,” Grubelich stated.

*More info:* Stephanie Holinka, slholin@sandia.gov



Lt. Chris Dallas and Tristan DeSantis demonstrate the fuel air diversionary device technology.

# Berkeley Creates Energy-Saving Roofs in Any Color

Due to aesthetics, most U.S. homeowners won't buy a light-colored roof, even if it reduces their air-conditioning bills by reflecting, instead of absorbing, solar heat.

So the question for scientists interested in increasing energy efficiency is, can one make a roof that is both cool and dark?

Hashem Akbari, Paul Berdahl, and Ronnen Levinson of Lawrence Berkeley National Laboratory (LBNL) have tackled that question with breakthrough results. They've developed a complete toolkit for developing heat-reflective roofing products in any color, dark or light.

The toolkit is called Cool Color Roofs. Roofing developed with Cool Color Roofs uses pigments that selectively reflect the invisible, near-infrared component of sunlight, making energy-saving roofing available in a wide range of colors. LBNL research estimates that applying cool-colored roofs to residences in U.S. cities could achieve a net energy savings of over \$400 million per year.

To develop Cool Color Roofs, the LBNL scientists used pigment spectroscopy to identify pigments of different colors that reflect the near-infrared component of sunlight and wrote software for the de-

sign of cool color coatings. They collaborated with a consortium of U.S. pigment, coating and roofing manufacturers to develop novel methods to manufacture asphalt shingle, clay tile, concrete tile, and metal roofing in a wide palette of cool colors.

LBNL's industrial partners manufactured the prototypes and products, while colleagues at Oak Ridge National Laboratory performed demonstration work, measuring both the energy savings achieved by the use of cool-colored roofing, and the extent to which exposure over time changes the appearance and performance of cool-colored roofing. All of LBNL's 16 industrial partners have introduced, or plan to introduce, cool-colored roof products or components (e.g., pigments, coatings, or colored granules). The consortium includes most major roofing manufacturers.

Cool-colored roofing reduces a home's solar heat gain and air-conditioning energy consumption in a warm climate by about 10 to 20%. These roofs also lower a home's peak-hour cooling power demand by about 10 to 20%, helping prevent blackouts and brownouts on hot summer afternoons.

In addition, when a sufficiently large number of home and commercial building owners adopt cool roofs re-

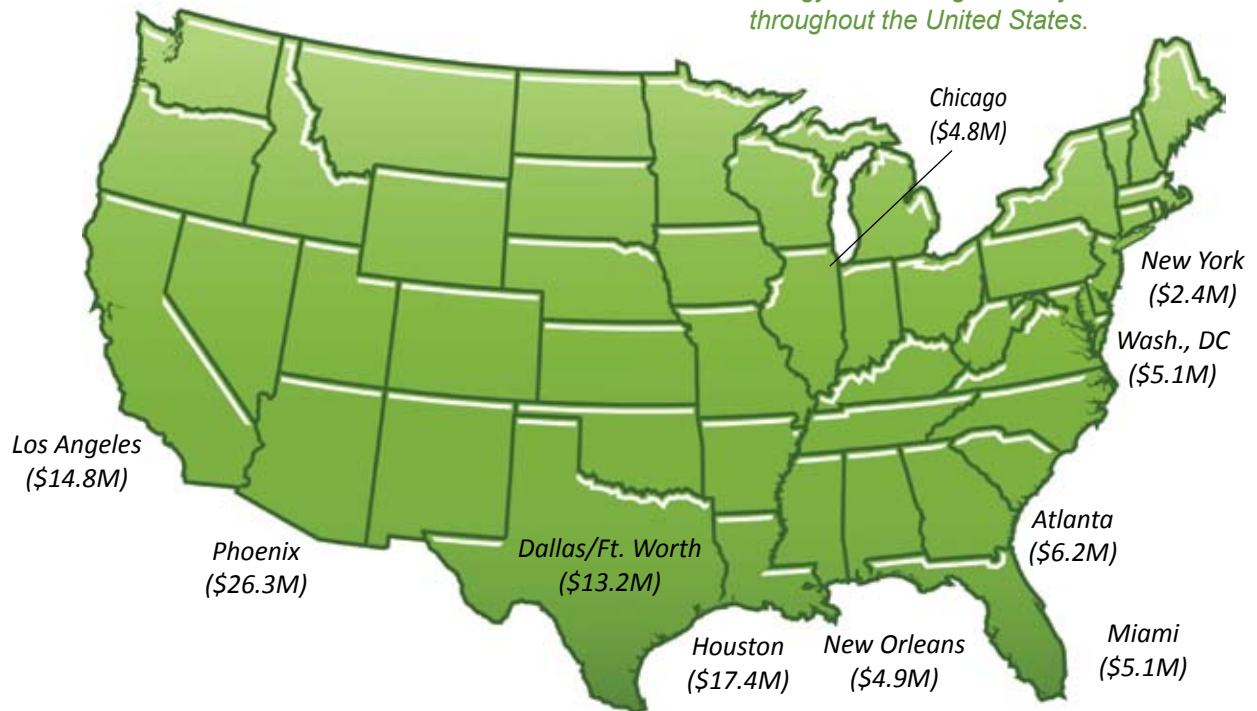
gionally, urban air temperatures decrease, slowing the rate of smog formation. This improves public health and helps cities meet federal clean air requirements.

The LBNL research team is now working with the automobile industry to develop cool-colored coatings for car exterior metal and plastic surfaces.

*More info:* Robin Johnston, rjohnston@lbl.gov

*LBNL research estimates that applying cool-colored roofs to residences in U.S. cities could achieve a net energy savings of over \$400 million per year.*

*LBNL studies have shown significant energy cost savings for major cities throughout the United States.*



# Homeland Security & South Jersey Transportation Authority Sign Unique Cooperative Agreement

The South Jersey Transportation Authority (SJTA) signed a unique Cooperative Research and Development Agreement with the Department of Homeland Security's Transportation Security Laboratory to establish a test bed for emerging security technologies at Atlantic City International Airport.

The agreement will allow the Laboratory to work in partnership with the SJTA to evaluate and develop technology prototypes, procedures and processes in the developmental stage to ensure that they work in the hands of those who keep travelers safe.

"Atlantic City International Airport will become a unique test bed for the DHS Science & Technology Directorate to garner feedback on security solutions early enough in the R&D cycle to allow us to provide guidance to our industry partners on how to package technology into a user-friendly, passenger-friendly system," said Dr. Susan Hallowell, director of the Transportation Security Laboratory.

Governor Jon S. Corzine, in acknowledging the importance of developing new technologies, stated, "The Agreement will also promote the SJTA's goal to provide safe and efficient transportation to the traveling public by making South Jersey a

unique, invaluable resource for the testing of ways to keep travelers secure."

The first activities that will result from this agreement will be a field test of a prototype shoe screening device. Passengers going through the baggage claim at Atlantic City International Airport will be asked to walk through the machine to assess how it performs in an airport setting. "This agreement provides the Laboratory with a golden opportunity to gather 'real world' data and feedback to the technology developers," said Hallowell. "The Laboratory's participation in this collaborative effort also strengthens our ability to refine security solutions that can be placed in the hands of the people responsible for protecting our nation against threats of terrorism."

Future activities resulting from this collaboration will involve other SJTA aviation and non-aviation venues, and will include passenger screening, biometrics, and cargo security technologies. "The close proximity to the TSL research and development operations at the FAA allows the SJTA to partner in the advancement and delivery of the latest technologies to enhance security operations for commerce and the traveling public," said SJTA Chairman Kris Kolluri.

The idea of bringing together the unique resources of the Transportation Security Laboratory with the excellent, user-friendly operation at Atlantic City International Airport (located adjacent to the Laboratory) was hatched by Hallowell and DHS Under Secretary for Science & Technology Jay Cohen. “This agreement creates a natural partnership that allows S&T to work closely with South Jersey in an operational environment to develop technology and test next-generation equipment,” said Cohen. “I want Atlantic City International Airport to become our next generation test bed for superior security solutions,” he emphasized.

Hallowell also praised the Transportation Security Administration staff at Atlantic City International Airport for their enthusiastic reception of the partnership idea. “We are thrilled that the Transportation Security officers are willing to provide their valuable feedback for the development of user-friendly equipment,” she said.

“The significance in signing this agreement today serves as a legacy for innovative aviation security solutions for years to come,” said SJTA Executive Director Bart R. Mueller.

The Transportation Security Laboratory, part of the DHS Science & Technology Directorate, is located at the Federal Aviation Administration’s William J. Hughes Technical Center, adjacent to Atlantic City International Airport.

The laboratory was established in 1992 for the research, development, and evaluation of aviation security technologies, such as passenger and luggage screening equipment.

*More info:* Patricia W. Reichenbach, [Patricia.Reichenbach@dhs.gov](mailto:Patricia.Reichenbach@dhs.gov)

*“The Laboratory’s participation in this collaborative effort also strengthens our ability to refine security solutions that can be placed in the hands of the people responsible for protecting our nation against threats of terrorism.”*

- Dr. Susan Hallowell, Director,  
Transportation Security Laboratory



# NASA Goddard Seeds Entrepreneurship Through Technology Assessment Program

The Technology Assessment Program (TAP) that began in fall 2006 at Howard Community College (HCC) in Maryland is seeding technology entrepreneurship in the community, thanks to an agreement with NASA Goddard Space Flight Center and other federal agencies.

Students in the “Taking Innovation to Market” class have surpassed the program’s goal of assessing 12 technologies in 3 years by reviewing and presenting 15 inventions in the first 2 years of the program.

“TAP is a significant step in connecting technology and enterprise,” said Victor Hess, Entrepreneur in Residence at the Howard County Economic Development Authority. “The long-term prosperity of our region will rely heavily on our ability to remove barriers to the transformation of knowledge into products and services.”

The course immerses students of all ages in the technology transfer process. Student teams analyze technology from Goddard, the Department of Agriculture, and Johns Hopkins University’s Applied Physics Laboratory, assessing the commercial viability of new inventions.

The teams present their findings and recommen-

dations at an open event attended by researchers, entrepreneurs, local business representatives, and technology transfer experts.

Students recently found commercialization potential for two Goddard inventions—Konstellation Keeper™, a precision aerial GPS antenna position system, and Space Temp, a MEMS-based (micro-electromechanical systems) thermal control subsystem. Goddard can use the students’ findings in marketing the technology.

The class attracts high-schoolers and seasoned professionals across industries to yield classroom diversity that fosters creative thinking. So far, 77 students have signed up for TAP, exceeding the grant goal of 50. Two other community colleges—Harford and Frederick—have applied for funding for similar programs. HCC will serve as the lead institution for developing a Technology Transfer Institute.

“TAP provides real-life educational opportunities for students, while supporting Goddard’s efforts to benefit the public through technology transfer,” said TAP class instructor Wayne Swann.

Swann led the effort to establish TAP at HCC. He recognized that technology transfer personnel are

in short supply and that programs are unable to keep pace with assessing and marketing promising innovations. In April 2006, he approached Goddard about participating in TAP. Goddard's Innovative Partnerships Program (IPP) Office saw the benefits of a program that engages students in innovation enterprise and teaches the fundamentals of technology transfer. In August of that year, Goddard and HCC signed a Space Act Agreement (SAA), and Goddard began sending information on its space program technologies to TAP.

The agreement benefits Goddard, HCC, and the regional community. Goddard receives written assessments that it can use in marketing the technology itself, or in some cases students may license Goddard's technology and create a startup company.

The college benefits from the prestige of NASA's participation. After three semesters, 81 percent of the students expressed high interest in entrepreneurial careers.

"Inspiring and motivating students to pursue technology-based entrepreneurship is a key goal of our program," said Nona Minnifield Cheeks, chief of Goddard's IPP Office. "And providing the seeds for economic growth in our region benefits everyone."

*More info:* Nancy Pekar, [npekar@fuentek.com](mailto:npekar@fuentek.com)

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Instructor Wayne Swann working with a group of ENTR-215 students.



# Washington Department of Natural Resources Protects Forest Resources While Generating Funds for Schools, County Services

Timber revenues from forestland managed by the Washington Department of Natural Resources (DNR) are used to fund public schools, universities, county services and other state projects.

In 2004, the state legislature directed the DNR to inventory the remaining old-growth forest on its land and develop management strategies for its conservation.

The management of old-growth forests in the Pacific Northwest has been a contentious issue for decades. Lawsuits in the courtroom and protests in forests have made it a frequent front-page news story. Legal costs and delays in timber harvests impact state budgets and regional economies.

Tami Miketa, Ecosystem Services Manager for the DNR, turned to scientists from the Pacific Northwest Research Station, USDA Forest Service, for help. “We have a legislative requirement to map old-growth forest,” said Miketa. “DNR maintains a comprehensive stand inventory of what’s growing on our land, but we needed help coming up with an index of characteristics that could be used to define ‘old growth’.”

Coming up with a definition of “old-growth” in driest eastside forests is harder than one might expect,

explained Miles Hemstrom, a research ecologist with the Portland Forestry Science Laboratory.

Washington is divided by the Cascade Range. Forests west of the mountains are wetter, whereas forests to the east are generally drier. This difference in climate leads to different forest types, and means westside and eastside old-growth has different characteristics.

Hemstrom points out that it’s not feasible to have field technicians age every tree on the 5.5 million acres the DNR manages.

And size isn’t always a determining factor. The old-growth index developed for the eastside included a set of visual attributes, such as the shape of the tree crown and the thickness and size of bark plates on the trunks of ponderosa pine, larch, and Douglas fir. “We hope to get away from hard and fast rules in determining old growth,” said Hemstrom. “There is too much variation in tree characteristics. It makes more sense to look at the whole tree, rather than simply its size.”

Very aware of the strong feelings around old-growth management, the Forest Service, DNR, and their collaborator from the University of Washington hosted several workshops for stakeholders,



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- Tami Miketa, Ecosystem Services Manager, DNR

including the superintendent of schools, members of the legislature, environmental groups, and the timber industry, to discuss the role of old-growth in the ecosystem and ways to manage it while also managing timber production.

“We hope that with this inclusive process we might arrive at common ground and avoid a lot of the fighting that has happened in the past,” said Hemstrom.

It turns out that on the drier eastside of the Cascade Range, managing for forest with old-growth characteristics and commercial timber is fairly compatible. “The large, old trees on the eastside are critical to conserve because they take so long to replace and are at risk from fire and drought stresses brought on by the younger trees crowding in below,” said Hemstrom. Managing the understory for timber may improve the health of the trees that remain by reducing the competition for water and nutrients. DNR and Forest Service scientists are now preparing management options for the state’s eastside old-growth forest.

*More info:* Rhonda Mazza, [rmazza@fs.fed.us](mailto:rmazza@fs.fed.us)

A field technician maps old-growth ponderosa pine on state land in eastern Washington using an index developed by scientists with the Pacific Northwest Research Station.



Miles Hemstrom

## Maryland and Army Team Up to Assist Small Businesses in Biotech

With the heightened focus on biodefense and bioterrorism, Maryland has become a hotbed for biotech companies looking to utilize the state's abundance of research centers, federal laboratories and programs designed to facilitate technology transfer to address these national concerns.

The Fort Detrick Technology Transfer Initiative (FDTTI) was established to provide awards to for-profit small businesses in support of technology development projects.

Emphasis is on the development of technologies that meet the medical needs of the Army, as well as the commercialization of technologies developed in Fort Detrick's research laboratories.

Funded by Congress, the FDTTI was formed through a partnership between the Maryland Technology Development Corporation (TEDCO), the Frederick County Office of Economic Development (OED), and the U.S. Army Medical Research and Materiel Command (USAMRMC), which is headquartered at Fort Detrick, Frederick, Md.

"I am working in the United States Senate to make our economy stronger, make America smarter, and make our troops and our communities safer—that's what TEDCO stands for as well,"

said Senator Barbara A. Mikulski. "TEDCO is an anchor tenant of Maryland's 21st century economy. I am so proud to have fought for this federal investment."

Through the FDTTI, companies can apply for and receive awards of up to \$50,000 for eligible projects. Since the launch of the initiative in 2005, 16 companies have received awards totaling \$800,000. In addition, the Frederick County OED offers business planning, development, and financing assistance as needed. Thus far, there have been no failures pertaining to the companies that have received awards.

"FDTTI is a proven vehicle for helping the private sector commercialize cutting edge innovations developed in Fort Detrick laboratories," said Renée Winsky, president and executive director of TEDCO. "We are pleased to use this federally funded program to carry out TEDCO's mission to help foster and grow early-stage technology companies that will develop innovations for the betterment of society."

Several of the businesses that have taken advantage of FDTTI awards are also housed at the Frederick Innovative Technology Center Inc., (FIT-

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- Renée Winsky, President and Executive director of TEDCO

CI), Frederick County’s business incubator. FITCI provides Maryland entrepreneurs a low-cost space for start-up companies to share resources such as office space, research and development labs, Internet and network management.

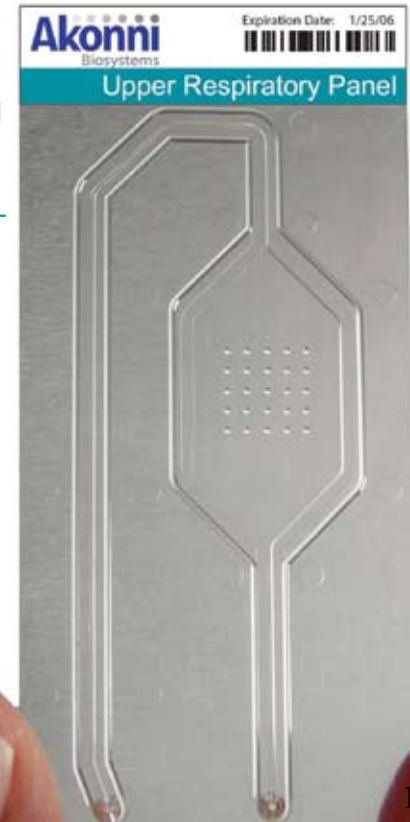
Akonni Biosystems, a small Maryland life science company founded in 2003 and also a graduate of the FITCI incubator, is one such company that won a FDTTI award.

The company used the \$50,000 to further efforts in developing, manufacturing and selling genetic-based diagnostic and disease surveillance products for infectious and other human health diseases. Akonni’s technology is based on a micro-array technique developed at Argonne National Laboratory.

Currently, Akonni is working with the Fort Detrick-based U.S. Army Medical Research Institute for Infectious Diseases (USAMRIID) to evaluate its microchip identification system for the detection of possible biodefense threats.

*More info:* [sara.b.miller@amedd.army.mil](mailto:sara.b.miller@amedd.army.mil)

Akonni used the \$50,000 it received from FDTTI to further efforts in developing genetic-based diagnostic and disease surveillance products.



## Riverside Forest Fire Laboratory and Space Instruments, Inc., Aid Fire Suppression Efforts in California

Fire season in California is becoming longer as warmer temperatures dry the landscape. As firefighters work to contain fires that threaten communities, their efforts are aided by FireMapper™, an innovative tool that provides critical information about a fire's location, direction, and intensity.

FireMapper is the product of a research joint venture between Pacific Southwest Research Station and Space Instruments, Inc. It is a thermal imaging system integrated with a vegetative mapping system called ForestMapper and a shortwave camera. Weighing only 7 pounds, it is mounted on a Piper Navajo twin-engine aircraft and collects data as it is flown over the fire. This information can be displayed in near-real time on a handheld PC.

"At a glance the incident commander can see where the fire is headed, evaluate its intensity, and decide where to direct resources," said Phil Riggan, a key contributor based at Pacific Southwest Research Station's Forest Fire Laboratory in Riverside, Calif. The data are geographically referenced and have been interfaced with Google Earth; output can be viewed at [www.fireimaging.com](http://www.fireimaging.com).

"Incident command teams are made up of people from lots of different areas. Now they all know

where to go for data. And it's very easy to see which way the fire is moving," Riggan explained. The digital images and three-dimensional terrain maps for the California fires where FireMapper has been used are all in the public domain. "This lets the public check the status of a fire," said Riggan.

"This project initially began with a small business initiative grant," said Jim Hoffman, the owner of Space Instruments, based in Encinitas, Calif. "We've been working with Phil Riggan and the U.S. Forest Service for 10 years. We designed and built all the hardware systems and Phil's people handled the data processing. They wrote the FireMapper tools that let the user scan through the data. It has been a very successful partnership."

Hoffman explained that FireMapper has several innovative features. Its microbolometer detectors operate as an "uncooled" system.

Because it doesn't need liquid nitrogen or a refrigeration system to cool the detectors, FireMapper is lighter, less expensive, and easier to maintain than other types of thermal imaging systems. This technology was originally developed by the military for night vision equipment. Space Instruments was one of the first companies to develop a non-military use for it.

*“At a glance the incident commander can see where the fire is headed, evaluate its intensity, and decide where to direct resources.”*

- Phil Riggan, Pacific Southwest Research Station's Forest Fire Laboratory

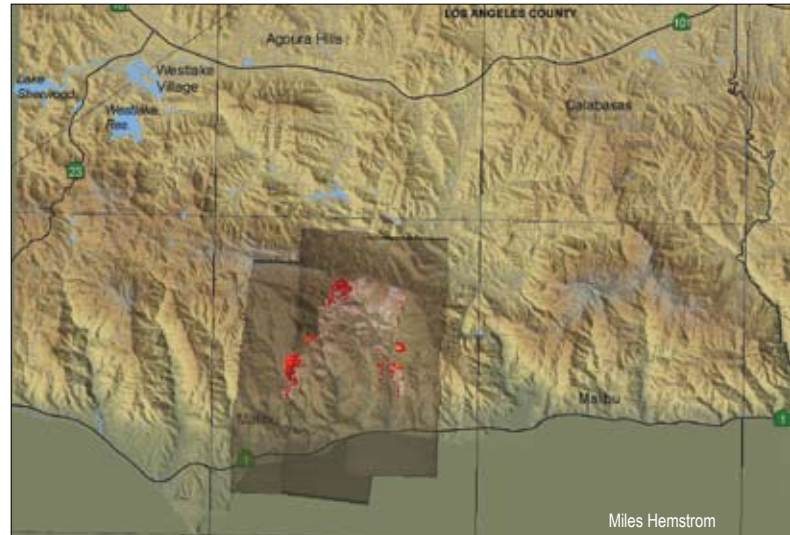
Another innovation is FireMapper's ability to penetrate smoke and accurately calibrate heat intensity up to 1200 degrees C.

This information helps incident commanders identify spotfires that may grow in size and intensity and distinguish them from burned areas of still-warm ash. “We've never before had this kind of information about fire behavior,” said Riggan.

The imaging and mapping technology also has other applications. “We market FireMapper and ForestMapper separately,” explained Hoffman. “We use ForestMapper in Mexico to map endangered elephant seals on Guadalupe Island. The Brazilian government is using both FireMapper and ForestMapper in its efforts to protect the rain forest, and we've sold it to the Brazilian police who are using it to fight illegal drug activity,” said Hoffman.

*More info:* Rhonda Mazza, [rmazza@fs.fed.us](mailto:rmazza@fs.fed.us)

FireMapper™ imaging of the Corral fire in Los Angeles County, Calif., at 10:49 PST on November 24, 2007



# Idaho National Laboratory Teams with Idaho TechConnect to Encourage Entrepreneurism

Idaho's 2008 Entrepreneurial Idol was crowned May 29 at TechLaunch 5.0 in Boise, Idaho.

Caring Technologies, Inc., a Boise-based company, took the \$10,000 grand prize sponsored by Idaho National Laboratory (INL).

Out to revolutionize behavioral medicine treatment, Caring Technologies focuses on enriching the interaction between patients and professionals through a proprietary patented video data capture system, accompanying online consultation and a unique health records environment.

An annual event now in its fifth year, TechLaunch is organized by Idaho TechConnect and INL, with support from the Idaho Economic Development Association, the Idaho Department of Commerce, and other public and private organizations across the state.

TechLaunch, an educational event, teaches entrepreneurs how to pitch their ideas to investors.

Entrepreneurs from across the state present their business to a panel of judges representing various aspects of the financing food chain, including venture capital, angels and commercial bankers.

Rick Ritter, CEO/President of Idaho TechConnect, noted, "The event gives companies the

chance to interact with each other. Companies see that they are not alone in their challenges and opportunities to successfully launch (and ultimately fund) their company."

To date, 29 companies have participated, raising a total of more than \$24 million in R&D and investment funds. This year 13 companies participated in the two-day event, which also featured the winners of Idaho's university business plan competitions. Boise company R2EV captured the "Next Gen" win with its innovative energy product to "REvolutionize clean transportation." Alex Livingston, founder and president of R2EV, noted that TechLaunch was "really a beneficial experience." The company was also the winner of the 2008 Bronco Venture Challenge for Undergraduate Teams at Boise State University.

Scott Black, representing Accelerated Precision and the University of Idaho's 2008 VIEW winner commented, "I had a blast at the event and every second there I learned something new. It was a great experience. I am thankful for the opportunity to attend."

Curt Rideout, Director of Government Programs and the presenter for winning team Caring Tech-

*“Tech Launch 5.0 provided one of the most insightful and beneficial experiences for Caring Technologies and other small companies that are available in this state. What a great opportunity for small businesses to ‘strut their stuff!’”* - Curt Rideout

nologies, agreed. “Tech Launch 5.0 provided one of the most insightful and beneficial experiences for Caring Technologies and other small companies that are available in this state. What a great opportunity for small businesses to ‘strut their stuff!’”

Previous participants have ranged from gaming software to snowboards, from website services to meth lab cleanup.

Since its inception in 2003, Tech-Connect and INL have collaborated to strengthen and foster an entrepreneurial climate in Idaho.

In addition to TechLaunch, business development tours introduce entrepreneurs, researchers, scientists and members of the general public to the Lab’s research and development efforts.

*More info:* Michelle Blacker, Michelle.Blacker@inl.gov



# Argonne Constructs Cutting-Edge Computational Facilities

Born of the atomic age and grown in the shadow of the Cold War, Argonne National Laboratory, the nation's first national laboratory, is building facilities to tackle tomorrow's challenges.

Argonne has a longstanding and mutually beneficial relationship with the state and local governments in Illinois. In association with the development of the Advanced Photon Source (APS), the state fully funded the Argonne Guest House, a hotel-style conference and lodging facility on the Argonne site, as well as construction of the Center for Nanoscale Materials; the state also contributed funding to the APS construction.

The lab has recently received planning money for the design of a Protein Crystallization Center and the Illinois Science Center; construction funding for these two facilities is expected to follow pending the passage of a capitol bill.

Argonne, with state and local assistance, is also looking to the future of computing: construction of the more than 200,000 square-foot, seven-story-tall Theory and Computing Sciences (TCS) building is underway.

When completed, the building will house a world-class research center and provide much-needed

infrastructure for large-scale computers. The building will also contain a digital conference and meeting area, as well as the consolidated Argonne library.

"The Theory and Computing Sciences facility is a critical building block in the modernization plan for the entire laboratory," said Bo Arnold, deputy chief operations officer.

TCS originated as a result of the Department of Energy leasing land to a nonprofit entity, the TCSB Trust, to allow for the finance, design and construction of the facility. TCS is located on approximately 13 acres of land; once it is built, Argonne will lease and occupy the entire building.

TCS will provide space for up to 750 offices and will house the mathematics and computer sciences, environmental science and computing and information systems divisions, as well as Argonne Leadership Computing Facility and Computation Institute researchers and staff.

The Argonne libraries will be consolidated from five locations on campus to a two-story modern space inside TCS.

The Supercomputer Support Facility is a 25,000 square-foot wing of the coming building in which the



*“The TCS facility provides an unprecedented platform at Argonne to advance the mission of the Department of Energy and the opportunity to enhance the nation’s science and science education agenda.”*

- Angela Harvey, TCS Federal Project Director

Argonne Leadership Computing Facility and other key computing projects will conduct research on state-of-the-art computing systems, which include the IBM Blue Gene/P, recently named the fastest supercomputer in the world for open science, accessible to industry and academic research.

The new building will also offer a publicly accessible conference area outside the lab’s security barrier, where researchers, university partners and the local community can hold conferences and meetings of up to 200 people in a large auditorium with four multipurpose rooms.

“The TCS facility provides an unprecedented platform at Argonne to advance the mission of the Department of Energy and the opportunity to enhance the nation’s science and science education agenda,” said Angela Harvey, TCS federal project director.

As of mid-June, construction is on schedule, and TCS is expected to be occupied in the summer of 2009.

*More info:* Cynthia Wesolowski, [weso@anl.gov](mailto:weso@anl.gov)





[www.federallabs.org](http://www.federallabs.org)



# *Advancing Federal Research & Technology*

FEDERAL LABORATORY CONSORTIUM  
**FLC**  
FOR TECHNOLOGY TRANSFER

The Federal Laboratory Consortium for Technology Transfer (FLC), a nationwide network of over 250 federal laboratories, is the only government-wide forum for technology transfer (T2). Organized in 1974 and formally chartered by the Federal Technology Transfer Act of 1986, the FLC provides the framework for developing T2 strategies and opportunities by promoting and facilitating technical cooperation among federal laboratories, industry, academia, and state and local governments.

As the recognized leader in maximizing collaborative research for the transfer of technologies, the FLC enhances the socioeconomic well-being of the nation in the global marketplace.

Industry, government, and academic personnel looking to strengthen their T2 capabilities to capitalize on the nation's investment, better their position in the marketplace, or research technology can look to the FLC to foster the rapid movement of federal laboratory research results into the mainstream of the U.S. economy. The FLC advances T2 by expanding communication among industry, government, and academia. The FLC's website, Technology Locator, *T2 Desk Reference*, *FLC News-Link*, trade show exhibits, awards program, education and training publications, and network of experts are only a few of the tools it provides for successful T2.

The FLC is a consortium driven by the dedicated people of the federal laboratory system. These people are the scientists, agency representatives, and T2 professionals who transfer federally funded technology and expertise to the marketplace. Serving as a gateway for industry, government, and academia to access research and development, the FLC also serves as a resource for T2 education and training, news, programming, awards, and initiatives.

# FLC Tools for Technology Transfer Professionals

## **www.federallabs.org**

The FLC website makes it easy to find people, capabilities, and applications within the FLC's network of federal labs and centers. The site publicizes T2 news and technology trends, and provides a gateway to FLC products and services.

## **Technology Locator**

The Technology Locator is a free service that provides 1:1 personalized assistance locating federal laboratories ready to transfer their technologies to the marketplace and bringing these laboratories together for collaborative R&D. Call the Locator toll-free at 1-888-388-5227.

## **Education & Training**

The FLC provides education and training on all aspects of T2 to laboratory personnel. This service includes fundamentals, intermediate, and advanced training courses offering continuing education units (CEUs); a wide range of publications and resources; a training resources database; and an online T2 curriculum.

## **FLC Awards Program**

The FLC honors technology transfer excellence through its awards program. Each year, the FLC recognizes those who advance federal technology and expertise to the marketplace.



## **FLC Calendar**

An annual collection of images from the federal laboratory system.



## **FLC NewsLink**

A free monthly newsletter reporting on a host of technologies and training events, and highlighting the technological advances of federal laboratories, industry, and academia.



## **Technology for Today**

An annual publication showcasing the recent successes of the federal laboratory system.



## **Technology Transfer Desk Reference**

The desktop essential for Laboratory Representatives, Office of Research & Technology Applications personnel, business development managers, and any and all T2 pros!



## **Technology Transfer Desk Reference**

21-hour, 11-DVD set containing 14 video courses covering a variety of technology transfer topics.



# FLC Regions

## Far West

<http://www.zyn.com/flcfw>  
Regional Coordinator: Ida Shum  
Lawrence Livermore National Laboratory  
925-423-9724  
shum3@llnl.gov

## Midwest

<http://www.flcmidwest.org>  
Regional Coordinator: Kristen Schario  
AFRL, Propulsion Directorate  
937-255-3428  
kristen.schario@wpafb.af.mil

## Mid-Atlantic

<http://www.flcmidatlantic.org>  
Regional Coordinator: Mojdeh Bahar  
National Institutes of Health  
301-435-2950  
baharm@mail.nih.gov

## Northeast

<http://www.flcnortheast.org>  
Regional Coordinator: Dr. Theresa Baus  
Naval Undersea Warfare Center  
401-832-8728  
theresa.baus@navy.mil

## Mid-Centroid

<http://www.zyn.com/flcmc>  
Regional Coordinator: Michael Crane  
Air Force Academy  
719-333-8484  
michael.crane@usafa.edu

## Southeast

<http://www.southeastflc.org>  
Regional Coordinator: Mark Reeves  
Oak Ridge National Laboratory  
865-576-2577  
reevesme@ornl.gov



## FLC Technology Locator Service

For industry and other technology seekers, the FLC Locator Network serves as a point of entry to federal laboratory expertise and technology. Through its network of representatives, the FLC puts a potential partner in contact with a federal laboratory with expertise and capability in a specific area of interest. FLC Technology Locator services include:

- Identifying laboratory technical resources that can respond to specific requests
- Providing referrals to other federal resources
- Using an FLC Technical Specialist System to complement information sources
- Publishing directories that focus on special technological needs.

### **More information**

Frank Koos

856-667-7727

[fkoo@utrs.com](mailto:fkoo@utrs.com)

[www.federallabs.org/locator](http://www.federallabs.org/locator)

### *Sample Successes*



Concurrent Technologies Corporation (CTC), Columbia, South Carolina, contacted the Technology Locator for information regarding laboratory capabilities, as well as past and ongoing research related to alternative fuels. CTC's goal was to identify laboratories conducting research in the area of enhanced bio-diesel products. The Technology Locator Service provided contact information for personnel and links to Department of Agriculture, Department of Energy and Department of Defense websites with research information in this area. *"The information provided by the FLC Technology Locator Service was on point and proved to be very useful. It is great to have one place to get input on such a broad set of federal labs."* —Michael Muthig, Principal Technology Transfer Specialist, Concurrent Technologies Corporation

AMTV, LLC would like to identify federal laboratories involved in or interested in collaborating on the development of next-generation lightweight computer hardware, specifically virtual keyboards, touch screens and other more robust, nonmechanical solutions that reduce the risk of contamination in various demanding (dirty/hazardous) environments. *"FLC's Technology Locator continues to provide a valuable service to AMTV by helping us to locate federal laboratories that address particular technology topics. A recent example is the swift identification of a defense organization that addresses emerging developments in virtual computer hardware. The relevance of results to such inquiries makes our own technology transfer services that much more expedient as we aim to connect private industry to the Department of Defense and similar federal laboratories in support of FirstLink and other projects that we address."* —Susan Zelicoff, Executive Vice President, AMTV, LLC





# FLC Laboratories by State

*(websites listed where applicable)*

# FLC Laboratories by State *(websites listed where applicable)*

## **Alabama**

Army - Aeromedical Research Laboratory  
[www.usaarl.army.mil](http://www.usaarl.army.mil)

Army - AMC - Aviation & Missile Command  
[http://ams15.redstone.army.mil:7443/pls/apws/apwsdba.apws\\_home](http://ams15.redstone.army.mil:7443/pls/apws/apwsdba.apws_home)

Army - Redstone Technical Test Center  
[www.rttc.army.mil](http://www.rttc.army.mil)

Army - Space & Missile Defense Command  
[www.smdc.army.mil](http://www.smdc.army.mil)

NASA - Marshall Space Flight Center  
[www.nasa.gov/centers/marshall/home/index.html](http://www.nasa.gov/centers/marshall/home/index.html)

## **Arizona**

Army - Electronic Proving Ground  
[www.epg.army.mil/](http://www.epg.army.mil/)

Army - Yuma Proving Ground  
[www.yuma.army.mil/](http://www.yuma.army.mil/)

Army - Technology Integration Center

BR-Water Quality Improvement Center  
[www.zyn.com/flcfw/fwnews/fwarch/fw9901f.htm](http://www.zyn.com/flcfw/fwnews/fwarch/fw9901f.htm)

## **Arkansas**

HHS - FDA - National Center for Toxicological Research  
[www.fda.gov/nctr](http://www.fda.gov/nctr)

## **California**

Air Force - 30th Space Wing  
[www.vandenberg.af.mil/30sw/index.html](http://www.vandenberg.af.mil/30sw/index.html)

Air Force - Air Force Flight Test Center  
[www.edwards.af.mil](http://www.edwards.af.mil)

Air Force - Sacramento Air Logistics Center

Air Force - Space and Missile Systems Center  
[www.losangeles.af.mil/SMC/PK/PKHOME/pkhome.htm](http://www.losangeles.af.mil/SMC/PK/PKHOME/pkhome.htm)

Army - Aeroflightdynamics Directorate  
<http://halfdome.arc.nasa.gov/ar/rotorcrafter.html>

Army - Defense Language Institute Foreign Language Center  
[www.dliflc.edu/](http://www.dliflc.edu/)

DOD - Defense Microelectronics Activity  
[www.dmea.osd.mil/](http://www.dmea.osd.mil/)

DOE - Lawrence Berkeley National Laboratory  
[www.lbl.gov](http://www.lbl.gov)

DOE - Lawrence Livermore National Laboratory  
[www.llnl.gov/](http://www.llnl.gov/)

DOE - Sandia National Laboratories – California  
[www.ca.sandia.gov/casite/](http://www.ca.sandia.gov/casite/)

DOE - Stanford Linear Accelerator Center  
[www.slac.stanford.edu/](http://www.slac.stanford.edu/)





DOE - University of California Los Angeles  
[www.ucla.edu/](http://www.ucla.edu/)

DOI - USGS - Western Regional Office  
<http://biology.usgs.gov/wro/>

FS - Washington Office Fire & Aviation Management

NASA - Ames Research Center  
[www.arc.nasa.gov/](http://www.arc.nasa.gov/)

NASA - Jet Propulsion Laboratory  
[www.jpl.nasa.gov/](http://www.jpl.nasa.gov/)

Navy - Naval Air Warfare Center Weapons Division - China Lake  
[www.nawcwpns.navy.mil](http://www.nawcwpns.navy.mil)

Navy - Naval Facilities Engineering Service Center  
[www.nfesc.navy.mil/](http://www.nfesc.navy.mil/)

Navy - Naval Health Research Center  
[www.nhrc.navy.mil](http://www.nhrc.navy.mil)

Navy - Naval Postgraduate School  
[www.nps.edu](http://www.nps.edu)

Navy - Naval Surface Warfare Center Port Hueneme Division  
[www.phdnswc.navy.mil](http://www.phdnswc.navy.mil)

Navy - SPAWAR Systems Center, San Diego  
[www.spawar.navy.mil/sandiego](http://www.spawar.navy.mil/sandiego)

USACE - Hydrologic Engineering Center  
[www.usace.army.mil](http://www.usace.army.mil)

USDA - ARS Pacific West Area  
[www.ars.usda.gov/main/site\\_main.htm?modecode=53-00-00-00](http://www.ars.usda.gov/main/site_main.htm?modecode=53-00-00-00)

USDA - FS - San Dimas Technology & Development Center  
[www.fs.fed.us/eng/techdev/sdtcdc.htm](http://www.fs.fed.us/eng/techdev/sdtcdc.htm)

## **Colorado**

Air Force Academy  
[www.usafa.edu](http://www.usafa.edu)

APHIS - National Wildlife Research Center  
[www.aphis.usda.gov/ws/nwrc](http://www.aphis.usda.gov/ws/nwrc)

ARS - National Seed Storage Laboratory

Bureau of Reclamation  
[www.usbr.gov](http://www.usbr.gov)

DOE - National Renewable Energy Laboratory  
[www.nrel.gov](http://www.nrel.gov)

DOE - Rocky Flats Environmental Technology Site  
[www.rfets.gov](http://www.rfets.gov)

DOE - Rocky Mountain Oilfield Testing Center  
[www.rmotc.com](http://www.rmotc.com)

FRA - Transportation Test Center  
[www.fra.dot.gov](http://www.fra.dot.gov)

# FLC Laboratories by State *(websites listed where applicable)*

National Telecommunication and Information Administration  
[www.ntia.doc.gov](http://www.ntia.doc.gov)

NOAA - Aeronomy Laboratory

NOAA - Environmental Technology Laboratory  
[www.etl.noaa.gov](http://www.etl.noaa.gov)

NOAA - Forecast Systems Laboratory  
[www.fsl.noaa.gov](http://www.fsl.noaa.gov)

NOAA/ERL - Space Environment Laboratory

NOAA/NESDIS - National Geophysical Data Center

Rocky Flats Plant

SAIC - Advanced Technology Group

USDA - ARS - Northern Plains Area  
[www.ars.usda.gov/main/site\\_main.htm?modecode=54-00-00-00](http://www.ars.usda.gov/main/site_main.htm?modecode=54-00-00-00)

USDA - FS - Rocky Mountain Research Station  
[www.fs.fed.us/rm](http://www.fs.fed.us/rm)

USGS - Central Regional Office  
[www.geology.cr.usgs.gov/crg/ocr.htm](http://www.geology.cr.usgs.gov/crg/ocr.htm)

USGS - MidContinent Ecological Science Center  
[www.mesc.usgs.gov/default.asp](http://www.mesc.usgs.gov/default.asp)

## **Connecticut**

Coast Guard R&D Center

Naval Submarine Medical Research Laboratory  
[www.nhrc.navy.mil/nsmrl](http://www.nhrc.navy.mil/nsmrl)

## **Florida**

Air Armament Center  
[www.sverdrup.com/sets/usaf\\_armament.shtml](http://www.sverdrup.com/sets/usaf_armament.shtml)

Air Force Armstrong Envirionics Directorate

Air Force Research Laboratory - Munitions Directorate  
[www.mn.afrl.af.mil](http://www.mn.afrl.af.mil)

ARL - Army Research Office  
[www.arl.army.mil/aro](http://www.arl.army.mil/aro)

DOE - Hemispheric Center for Environmental Technology  
[www.hcet.fiu.edu](http://www.hcet.fiu.edu)

NASA - Kennedy Space Center  
[www.nasa.gov/centers/kennedy/home/index.html](http://www.nasa.gov/centers/kennedy/home/index.html)

National High Magnetic Field Laboratory  
[www.nhmfl.gov](http://www.nhmfl.gov)

Navy - Naval Aerospace Medical Research Laboratory  
[www.namrl.navy.mil](http://www.namrl.navy.mil)

Navy - Naval Air Warfare Center Training Systems Division  
[www.ntsc.navy.mil](http://www.ntsc.navy.mil)



Navy - Naval Surface Warfare Center - Panama City  
[www.ncsc.navy.mil](http://www.ncsc.navy.mil)

## Georgia

Air Force - Warner Robins Air Logistics Center  
[www.robins.af.mil](http://www.robins.af.mil)

ARS - South Atlantic Area  
[www.ars-grin.gov/ars/SoAtlantic](http://www.ars-grin.gov/ars/SoAtlantic)

Atlanta Rehab R&D Center  
[www.varrd.emory.edu](http://www.varrd.emory.edu)

HHS - Centers for Disease Control and Prevention  
[www.cdc.gov](http://www.cdc.gov)

## Idaho

DOE - Idaho National Laboratory  
[www.inel.gov](http://www.inel.gov)

DOE - Chicago Operations Office

DOE - Fermi National Accelerator Laboratory  
[www.fnal.gov](http://www.fnal.gov)

DOE - New Brunswick Laboratory  
[www.nbl.doe.gov](http://www.nbl.doe.gov)

USACE - ERDC -  
Construction Engineering Research Laboratory  
[www.cecer.army.mil](http://www.cecer.army.mil)

National Center for Agricultural Utilization Research  
[www.ars.usda.gov/main/site\\_main.htm?modecode=36200000](http://www.ars.usda.gov/main/site_main.htm?modecode=36200000)

## Illinois

Argonne National Laboratory  
[www.anl.gov](http://www.anl.gov)

Agricultural Research Service - Midwest Area  
[www.ars.usda.gov/main/site\\_main.htm?modecode=36-00-00-00](http://www.ars.usda.gov/main/site_main.htm?modecode=36-00-00-00)

NIST - Center for Advanced Cement-Based Materials  
<http://acbm.northwestern.edu>

Fermi National Accelerator Laboratory  
[www.fnal.gov](http://www.fnal.gov)

New Brunswick Laboratory  
[www.nbl.doe.gov](http://www.nbl.doe.gov)

U.S. Transportation Command  
[www.transcom.mil](http://www.transcom.mil)

USACE - ERDC - Construction Engineering Research Laboratory  
[www.cecer.army.mil](http://www.cecer.army.mil)

## Indiana

Navy - Naval Surface Warfare Center - Crane Division  
[www.crane.navy.mil](http://www.crane.navy.mil)

# FLC Laboratories by State *(websites listed where applicable)*

## **Iowa**

Ames Laboratory  
[www.ameslab.gov](http://www.ameslab.gov)

ARS - National Animal Disease Center

## **Kansas**

Army - TRADOC Analysis Center  
[www.trac.army.mil](http://www.trac.army.mil)

## **Louisiana**

ARS - Southern Regional Research Center

## **Maryland**

ARL-Weapons & Materials Directorate  
[www.arl.army.mil/wmrd](http://www.arl.army.mil/wmrd)

Army - Aberdeen Test Center  
[www.atc.army.mil](http://www.atc.army.mil)

Army - ARL - Aberdeen Proving Ground Site  
[www.arl.army.mil](http://www.arl.army.mil)

Army - ARL - Adelphi Site  
[www.arl.army.mil](http://www.arl.army.mil)

Army - Army Medical Research Institute of Chemical Defenses  
[www.chemdef.apgea.army.mil](http://www.chemdef.apgea.army.mil)

Army - Center for Environmental Health Research  
<http://usacehr.detrick.army.mil>

Army - Edgewood Chemical Biological Center  
[www.ecbc.army.mil](http://www.ecbc.army.mil)

Army - Walter Reed Army Institute of Research  
<http://wrair-www.army.mil>

Army Medical Research Institute of Infectious Diseases  
[www.usamriid.army.mil](http://www.usamriid.army.mil)

Army Test & Evaluation Command  
DOC - National Institute of Standards and Technology  
[www.nist.gov](http://www.nist.gov)

DOD - National Geospatial-Intelligence Agency  
[www.nga.mil](http://www.nga.mil)

DOD - Uniformed Services University of Health Sciences  
[www.usuhs.mil](http://www.usuhs.mil)

HHS - FDA - Center For Biologics Evaluation and Research  
[www.fda.gov/cber](http://www.fda.gov/cber)

HHS - FDA - Center for Veterinary Medicine  
[www.fda.gov/cvm](http://www.fda.gov/cvm)

HHS - National Institutes of Health  
[www.nih.gov](http://www.nih.gov)

HHS - NIH - National Cancer Institute – Frederick  
<http://ttb.nci.nih.gov>



HHS - NIH - National Cancer Institute – Rockville  
[www.cancer.gov](http://www.cancer.gov)

HHS - NIH - National Center for Research Resources  
[www.ncrr.nih.gov](http://www.ncrr.nih.gov)

HHS - NIH - National Eye Institute  
[www.nei.nih.gov](http://www.nei.nih.gov)

HHS - NIH - National Heart, Lung, and Blood Institute  
[www.nhlbi.nih.gov](http://www.nhlbi.nih.gov)

HHS - NIH - National Human Genome Research Institute  
[www.genome.gov](http://www.genome.gov)

HHS - NIH - National Institute of Allergy and Infectious Diseases  
[www.niaid.nih.gov](http://www.niaid.nih.gov)

HHS - NIH - National Institute of Child Health and Human Development  
[www.nichd.nih.gov](http://www.nichd.nih.gov)

HHS - NIH - National Institute of Dental and Craniofacial Research  
[www.nidcr.nih.gov](http://www.nidcr.nih.gov)

HHS - NIH - National Institute of Diabetes and Digestive and Kidney Diseases  
[www.niddk.nih.gov](http://www.niddk.nih.gov)

HHS - NIH - National Institute of General Medical Sciences  
[www.nigms.nih.gov](http://www.nigms.nih.gov)

HHS - NIH - National Institute of Mental Health  
[www.nimh.nih.gov](http://www.nimh.nih.gov)

HHS - NIH - National Institute of Neurological Disorders and Stroke  
[www.ninds.nih.gov](http://www.ninds.nih.gov)

HHS - NIH - National Institute of Nursing Research  
[www.nih.gov/ninr](http://www.nih.gov/ninr)

HHS - NIH - National Institute on Aging  
[www.nia.nih.gov](http://www.nia.nih.gov)

HHS - NIH - National Institute on Alcohol Abuse and Alcoholism  
[www.niaaa.nih.gov](http://www.niaaa.nih.gov)

HHS - NIH - Nat. Institute on Deafness and Other Communication Disorders  
[www.nidcd.nih.gov](http://www.nidcd.nih.gov)

HHS - NIH - National Institute on Drug Abuse  
[www.nida.nih.gov](http://www.nida.nih.gov)

HHS - NIH - National Library of Medicine  
[www.nlm.nih.gov](http://www.nlm.nih.gov)

NASA - Goddard Space Flight Center  
[www.nasa.gov/centers/goddard/home/index.html](http://www.nasa.gov/centers/goddard/home/index.html)

National Institute of Arthritis and Musculoskeletal and Skin Diseases  
[www.niams.nih.gov](http://www.niams.nih.gov)

# FLC Laboratories by State *(websites listed where applicable)*

National Institute of Biomedical Imaging and Bioengineering  
[www.nibib.nih.gov](http://www.nibib.nih.gov)

National Oceanic and Atmospheric Administration  
[www.noaa.gov](http://www.noaa.gov)

Naval Explosive Ordnance Disposal Technology Division  
<http://naveodtechdiv.navsea.navy.mil>

Naval Air Warfare Center Aircraft Division - Patuxent River  
[www.nawcad.navy.mil](http://www.nawcad.navy.mil)

Naval Medical Research Center  
[www.nmrc.navy.mil](http://www.nmrc.navy.mil)

Naval Surface Warfare Center - Carderock Division  
[www.dt.navy.mil](http://www.dt.navy.mil)

Naval Surface Warfare Center - Indian Head Division  
[www.ih.navy.mil](http://www.ih.navy.mil)

Naval Weapons Station - Indian Head Division  
[www.ih.navy.mil/](http://www.ih.navy.mil/)

Navy - U.S. Naval Academy  
[www.usna.edu](http://www.usna.edu)

U.S. Army Medical Research and Materiel Command  
<https://mrmc.detrick.army.mil>

University of Maryland  
[www.umd.gov](http://www.umd.gov)

USDA - ARS - Beltsville Area Research Center  
[www.ba.ars.usda.gov/](http://www.ba.ars.usda.gov/)

## **Massachusetts**

Air Force Electronic System Center  
<http://esc.hanscom.af.mil>

Air Force Research Laboratory -  
Space Vehicles Directorate - Hanscom AFB  
[www.vs.af.mil](http://www.vs.af.mil)

Army - U.S. Army Research Institute of  
Environmental Medicine  
[www.usariem.army.mil](http://www.usariem.army.mil)

DOT - RITA - The Volpe National  
Transportation Systems Center  
[www.volpe.dot.gov](http://www.volpe.dot.gov)

National Marine Fisheries Service  
[www.nmfs.noaa.gov](http://www.nmfs.noaa.gov)

Navy - Navy Clothing and Textile Research Facility  
[www.navy-nex.com/command/nctrf/nctrf-index.html](http://www.navy-nex.com/command/nctrf/nctrf-index.html)

## **Michigan**

Army - Tank Automotive Research, Development  
& Engineering Center  
[www.tacom.army.mil/tardec](http://www.tacom.army.mil/tardec)

Army National Automotive Center  
[www.tacom.army.mil/tardec/nac](http://www.tacom.army.mil/tardec/nac)



ARS - Midwest Area  
[www.ars.usda.gov](http://www.ars.usda.gov)

## **Minnesota**

FS - North Central Research Station  
[www.ncrs.fs.fed.us](http://www.ncrs.fs.fed.us)

## **Mississippi**

Army - USACE - ERDC - Information Technology Laboratory  
<http://itl.erd.c.usace.army.mil>

NASA - Stennis Space Center  
[www.nasa.gov/centers/stennis/home/index.html](http://www.nasa.gov/centers/stennis/home/index.html)

Navy - Naval Oceanographic Office  
[www.navo.navy.mil](http://www.navo.navy.mil)

USACE - Engineer Research and Development Center  
[www.erd.c.usace.army.mil](http://www.erd.c.usace.army.mil)

USDA - ARS - Mid South Area  
<http://msa.ars.usda.gov/>

## **Missouri**

DOE - NNSA - Kansas City Plant  
[www.kcp.com](http://www.kcp.com)

DOI - USGS - Upper Midwest Environmental Sciences Center  
[www.umesc.usgs.gov](http://www.umesc.usgs.gov)

FS - Forestry Sciences Laboratory

## **Montana**

ARS - Northern Plains Agricultural Research Laboratory

Rocky Mountain Laboratories

USDA - FS - Missoula Technology & Development Center  
[www.fs.fed.us/eng/techdev/mtdc.htm](http://www.fs.fed.us/eng/techdev/mtdc.htm)

## **Nebraska**

Air Force - Air Weather Agency  
[www.af.mil/news/factsheets/Air\\_Force\\_Weather\\_Agency.html](http://www.af.mil/news/factsheets/Air_Force_Weather_Agency.html)

ARS - Roman L. Hruska U.S. Meat Animal Research Center (MARC)  
[www.marc.usda.gov](http://www.marc.usda.gov)

ARS - Soil & Water Conservation Unit  
[www.ianr.unl.edu/arslincoln/swcru/home.htm](http://www.ianr.unl.edu/arslincoln/swcru/home.htm)

## **Nevada**

DOE - Bechtel Nevada  
[www.bechtelnevada.com](http://www.bechtelnevada.com)

National Exposure Research Laboratory  
[www.epa.gov/nerl](http://www.epa.gov/nerl)

## **New Hampshire**

USACE - ERDC - Cold Regions Research and Engineering Laboratory  
[www.crrel.usace.army.mil](http://www.crrel.usace.army.mil)

# FLC Laboratories by State *(websites listed where applicable)*

## **New Jersey**

Army - Communications-Electronics Command  
[www.monmouth.army.mil/CELCMC](http://www.monmouth.army.mil/CELCMC)

Army Communications and Electronics Command  
[www.monmouth.army.mil/cecom.html](http://www.monmouth.army.mil/cecom.html)

Army Tank-Automotive and Armaments Command  
[www.tacom.army.com](http://www.tacom.army.com)  
Army-CECOM-Intelligence and Information  
Warfare Directorate

Army-CECOM/RDEC-  
Command & Control/Sys. Int. Directorate  
[www.monmouth.army.mil/cecom.html](http://www.monmouth.army.mil/cecom.html)

Army-CECOM/RDEC-Software Engineering Directorate  
[www.monmouth.army.mil/cecom.html](http://www.monmouth.army.mil/cecom.html)

Army-CECOM/RDEC-  
Space & Terrestrial Comm. Directorate  
[www.monmouth.army.mil/cecom.html](http://www.monmouth.army.mil/cecom.html)

DOE - Princeton Plasma Physics Laboratory  
[www.pppl.gov](http://www.pppl.gov)

FAA - William J. Hughes Technical Center  
[www.tc.faa.gov](http://www.tc.faa.gov)

## **New Mexico**

Air Force Research Laboratory - Directed Energy Directorate  
[www.de.afrl.af.mil](http://www.de.afrl.af.mil)

Air Force Research Laboratory - Space Vehicles Directorate  
[www.vs.afrl.af.mil](http://www.vs.afrl.af.mil)

Air Force Research Laboratory/Directed Energy

Army White Sands Missile Range  
[www.wsmr.army.mil](http://www.wsmr.army.mil)  
ARS - Southwestern Cotton Ginning Research Lab

DOE - Los Alamos National Laboratory  
[www.lanl.gov](http://www.lanl.gov)

DOE - Sandia National Laboratories  
[www.sandia.gov](http://www.sandia.gov)

I2WD: The McAfee Center

Naval Surface Warfare Center

Navy - Naval Air Warfare Center Aircraft Division  
[www.nawcad.navy.mil](http://www.nawcad.navy.mil)

NOAA/OAR - Geophysical Fluid Dynamics Laboratory

## **New York**

Air Force Research Laboratory-Information Directorate  
[www.rl.afrl.af.mil](http://www.rl.afrl.af.mil)





Army - Benet Laboratories  
[www.benet.wva.army.mil](http://www.benet.wva.army.mil)

ARS - Plant Genetic Research Unit  
[www.agron.missouri.edu/ars\\_comlumbia/pgru.html](http://www.agron.missouri.edu/ars_comlumbia/pgru.html)

Brookhaven National Laboratory  
[www.bnl.gov](http://www.bnl.gov)

## **North Carolina**

Duke University - Computer Science  
EPA - National Exposure Research Laboratory  
[www.epa.gov/nerl](http://www.epa.gov/nerl)

EPA - ORD - National Health and Environmental Effects Research Lab  
[www.epa.gov/nheerl](http://www.epa.gov/nheerl)

FS - Southern Research Station  
[www.srs.fs.fed.us](http://www.srs.fs.fed.us)

HHS - NIH - National Institute of Environmental Health Sciences  
[www.niehs.nih.gov](http://www.niehs.nih.gov)

Navy - Space and Naval Warfare Systems Center – Charleston  
<http://ssc.spawar.navy.mil>

## **North Dakota**

ARS - Grand Forks Human Nutrition Research Center  
[www.gfhnrc.ars.usda.gov](http://www.gfhnrc.ars.usda.gov)

ARS - Northern Great Plains Research Laboratory  
[www.mandan.ars.usda.gov](http://www.mandan.ars.usda.gov)

USGS - Northern Prairie Wildlife Research Center  
[www.npwrc.usgs.gov](http://www.npwrc.usgs.gov)

## **Ohio**

Air Force - Aeronautical Systems Center  
[www.wpafb.af.mil](http://www.wpafb.af.mil)

Air Force - Air Force Institute of Technology  
[www.afit.edu](http://www.afit.edu)

Air Force Packaging Technology & Engineering Facility

Air Force Research Laboratory  
[www.afrl.af.mil](http://www.afrl.af.mil)

Air Force Research Laboratory - Air Vehicles Directorate  
[www.va.afrl.af.mil](http://www.va.afrl.af.mil)

Air Force Research Laboratory - Human Effectiveness Directorate  
[www.he.afrl.af.mil](http://www.he.afrl.af.mil)

Air Force Research Laboratory - Materials and Manufacturing Directorate  
[www.ml.afrl.af.mil](http://www.ml.afrl.af.mil)

Air Force Research Laboratory - Propulsion Directorate  
[www.pr.afrl.af.mil](http://www.pr.afrl.af.mil)



# FLC Laboratories by State *(websites listed where applicable)*

Air Force Research Laboratory - Sensors Directorate  
[www.sn.afrl.af.mil](http://www.sn.afrl.af.mil)

Air Force Research Laboratory - Wright Site  
[www.wrs.afrl.af.mil](http://www.wrs.afrl.af.mil)

Argonne National Laboratory  
[www.anl.gov](http://www.anl.gov)

ARL - Vehicle Technology Directorate - Propulsion Program  
[www.arl.army.mil/vtd/vtcindex.html](http://www.arl.army.mil/vtd/vtcindex.html)

EPA - National Risk Management Research Laboratory  
[www.epa.gov/ord/nrmrl](http://www.epa.gov/ord/nrmrl)

HHS - CDC - National Institute for Occupational Safety and Health  
[www.cdc.gov/niosh](http://www.cdc.gov/niosh)

Mound Applied Technologies  
[www.em.doe.gov/tie/egmound.html](http://www.em.doe.gov/tie/egmound.html)

NASA - Glenn Research Center  
[www.nasa.gov/centers/glenn/home/index.html](http://www.nasa.gov/centers/glenn/home/index.html)

National Center for Atmospheric Research  
[www.ncar.ucar.edu/ncar](http://www.ncar.ucar.edu/ncar)

## **Oklahoma**

ARS - Grazinglands Research Laboratory  
[http://ars.usda.gov/main/site\\_main.htm?modecode=62180000](http://ars.usda.gov/main/site_main.htm?modecode=62180000)

ARS - Plant Science & Water Conservation  
Research Laboratory  
[www.pswcrl.ars.usda.gov](http://www.pswcrl.ars.usda.gov)

ARS - South Central Agricultural Research Laboratory  
[www.lane-ag.org](http://www.lane-ag.org)

FAA - Civil Aeromedical Institute  
[www.cami.jccbi.gov](http://www.cami.jccbi.gov)

National Institute for Petroleum & Energy Research

National Petroleum Technology Office  
[www.npto.doe.gov](http://www.npto.doe.gov)

NOAA/ERL - National Severe Storms Laboratory

## **Oregon**

Albany Research Center  
[www.alrc.doe.gov](http://www.alrc.doe.gov)

USDA - FS - Pacific Northwest Research Station  
[www.fs.fed.us/pnw/](http://www.fs.fed.us/pnw/)

## **Pennsylvania**

Army Military History Institute  
[www.carlisle.army.mil/ahec/MHI.htm](http://www.carlisle.army.mil/ahec/MHI.htm)

CDC - NIOSH - National Personal Protective  
Technology Laboratory  
[www.cdc.gov/niosh/npptl](http://www.cdc.gov/niosh/npptl)



Center for Advance Technology for Large Structural Systems

FS - Northeastern Area  
[www.na.fs.fed.us](http://www.na.fs.fed.us)

HHS - CDC - NIOSH - Pittsburgh Research Laboratory  
[www.cdc.gov/niosh/im-prl.html](http://www.cdc.gov/niosh/im-prl.html)

Institute for Research in Cognitive Science

Naval Surface Warfare Center - Carderock Division  
[www.dt.navy.mil](http://www.dt.navy.mil)

Software Engineering Institute  
[www.sei.cmu.edu](http://www.sei.cmu.edu)

USDA - ARS - North Atlantic Area  
[www.ars.usda.gov/main/site\\_main.htm?modecode=19-00-00-00](http://www.ars.usda.gov/main/site_main.htm?modecode=19-00-00-00)

USDA - FS - Northeastern Research Station  
[www.fs.fed.us/ne/](http://www.fs.fed.us/ne/)

## **Rhode Island**

Naval War College  
[www.nwc.navy.mil](http://www.nwc.navy.mil)

Navy - Naval Undersea Warfare Center Division Newport  
[www.npt.nuwc.navy.mil](http://www.npt.nuwc.navy.mil)

## **South Carolina**

DOE - Savannah River National Laboratory  
<http://srnl.doe.gov>

## **Tennessee**

Air Force - Arnold Engineering Development Center  
[www.arnold.af.mil](http://www.arnold.af.mil)

DOE - Oak Ridge National Laboratory  
[www.ornl.gov](http://www.ornl.gov)

DOE - Oak Ridge Operations Office

DOE - Y-12 National Security Complex  
[www.y12.doe.gov](http://www.y12.doe.gov)

Oak Ridge K-25 Site  
[www.nefsc.nmfs.gov](http://www.nefsc.nmfs.gov)

Office of Scientific & Technical Information  
Tennessee Valley Authority

## **Texas**

Air Force - 311th Human Systems Wing  
[www.brooks.af.mil](http://www.brooks.af.mil)

Army - Clinical Investigation Regulatory Office  
[www.cs.amedd.army.mil/ciro/default.htm](http://www.cs.amedd.army.mil/ciro/default.htm)

Army - Institute of Surgical Research  
[www.usaisr.amedd.army.mil](http://www.usaisr.amedd.army.mil)

Army Center for Healthcare Education and Studies  
[www.benet.wva.army.mil](http://www.benet.wva.army.mil)

# FLC Laboratories by State *(websites listed where applicable)*

ARS - Children's Nutrition Research Center

ARS - Food Animal Protection Research Laboratory

ARS - Grassland, Soil & Water Research Lab  
<http://arsserv0.tamu.edu>

ARS-Southern Cross Research Laboratory

Institute for Fusion Studies  
<http://peaches.ph.utexas.edu/ifs>

NASA - Johnson Space Center  
[www.nasa.gov/centers/johnson/home/index.html](http://www.nasa.gov/centers/johnson/home/index.html)

NOAA/NMFS - Galveston Laboratory

USDA - ARS - Southern Plains Area  
[www.ars.usda.gov/main/site\\_main.htm?modecode=62-00-00-00](http://www.ars.usda.gov/main/site_main.htm?modecode=62-00-00-00)

## Utah

Air Force - Ogden Air Logistics Center  
[www.hill.af.mil](http://www.hill.af.mil)

Army - Dugway Proving Ground  
[www.dugway.army.mil](http://www.dugway.army.mil)

Brigham Young University  
[www.byu.edu](http://www.byu.edu)

## Virginia

ARL - Vehicle Technology Directorate - Structures Program  
[www.arl.army.mil/vtd/vtcindex.html](http://www.arl.army.mil/vtd/vtcindex.html)

Army - Aviation Applied Technology Directorate  
[www.aatd.eustis.army.mil](http://www.aatd.eustis.army.mil)

Army - RDECOM - CERDEC - Night Vision and Electronic Sensors Directorate  
[www.nvl.army.mil](http://www.nvl.army.mil)

Army - U.S. Army Research Institute for the Behavioral and Social Sciences  
[www.ari.army.mil](http://www.ari.army.mil)

Army - USACE - Institute for Water Resources  
[www.iwr.usace.army.mil](http://www.iwr.usace.army.mil)

DOD - Defense Advanced Research Projects Agency  
[www.darpa.mil](http://www.darpa.mil)

DOD - Defense Technical Information Center  
[www.dtic.mil](http://www.dtic.mil)

DOE - Thomas Jefferson National Accelerator Facility  
[www.jlab.org](http://www.jlab.org)

DOI - U.S. Geological Survey  
[www.usgs.gov](http://www.usgs.gov)

Federal Bureau of Investigation  
[www.fbi.gov](http://www.fbi.gov)



Marine Corps Systems Commands  
[www.marcorsyscom.usmc.mil](http://www.marcorsyscom.usmc.mil)

NASA - Langley Research Center  
[www.larc.nasa.gov](http://www.larc.nasa.gov)

National Science Foundation  
[www.nsf.gov](http://www.nsf.gov)

Naval Surface Warfare Center - Dahlgren Division  
[www.nswc.navy.mil](http://www.nswc.navy.mil)

Navy - Naval Safety Center  
[www.safetycenter.navy.mil](http://www.safetycenter.navy.mil)

Navy - Office of Naval Research  
[www.onr.navy.mil](http://www.onr.navy.mil)

USACE - ERDC - Topographic Engineering Center  
[www.tec.army.mil](http://www.tec.army.mil)

VA - Rehabilitation Research & Development Service

## **Washington**

CDC - NIOSH - Spokane Research Laboratory  
[www.cdc.gov/niosh/im-srl.html](http://www.cdc.gov/niosh/im-srl.html)

DOE - Hanford Site  
[www.hanford.gov](http://www.hanford.gov)

DOE - Pacific Northwest National Laboratory  
[www.pnl.gov](http://www.pnl.gov)

Navy - Naval Undersea Warfare Center - Keyport Division  
[www-keyport.kpt.nuwc.navy.mil](http://www-keyport.kpt.nuwc.navy.mil)

## **Washington, DC**

Ballistic Missile Defense Organization

CIA - Gain Laboratory

EPA - Office of Science and Policy  
[www.epa.gov/osp](http://www.epa.gov/osp)

HHS - FDA - Center for Food Safety and Applied Nutrition  
[www.cfsan.fda.gov/list.html](http://www.cfsan.fda.gov/list.html)

NASA - Space Partnership Development  
<http://spd.nasa.gov>

Naval Sea Systems Command  
[www.navsea.navy.mil](http://www.navsea.navy.mil)

Navy - Naval Research Laboratory  
[www.nrl.navy.mil](http://www.nrl.navy.mil)

## **West Virginia**

CDC - NIOSH - Morgantown Research Laboratory  
[www.cdc.gov/niosh](http://www.cdc.gov/niosh)

DOE - National Energy Technology Laboratory  
[www.netl.doe.gov/](http://www.netl.doe.gov/)

## **Wisconsin**

USDA - FS - Forest Products Laboratory  
[www.fpl.fs.fed.us](http://www.fpl.fs.fed.us)



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Chair Belinda Padilla.

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**Editorial Staff**

Belinda Padilla  
Denise Bickmore  
Tom Brown  
Tom Grayson

**Contributors**

Karen Atkison  
Clara Asmail  
Michelle Blacker  
Regina Coeby  
Miles Hemstrom  
Rhonda Mazza  
Sara Miller  
Belinda Padilla  
Nancy Pekar  
Patricia Reichenbach  
Thomas Stackhouse  
Cynthia Wesolowski

**Design**

Tom Grayson



1001 Connecticut Ave., NW, Suite 735  
Washington, DC 20036  
202-296-7201  
*[www.federallabs.org](http://www.federallabs.org)*

