



spanning the globe

annual report 2011



DRI
Desert Research Institute

contents

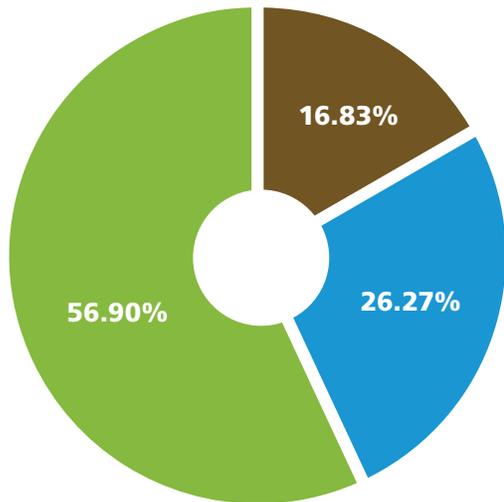
FINANCIAL REPORT	3
MISSION ANTARCTICA	4
ROCKING RENEWABLE ENERGY	5
FLOATING IN THE CLOUDS	5
LEADING THE WAY IN ATMOSPHERIC SCIENCES	6
THE SCIENCE OF DESERT WARFARE	6
IN MEMORY OF DR. JAMES TARANIK	7
IN MEMORY OF DR. GLENN BERGER	7
BOOSTING CONSUMERS ENERGY IQ	8
ENDURING LEGACY	8
25TH DRI NEVADA MEDAL	9
RESEARCH FOUNDATION BOARD OF TRUSTEES	10

financial report

fiscal year 2011

for the institute

TOTAL REVENUE \$55,282,000



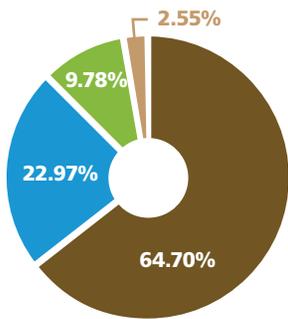
- STATE APPROPRIATIONS, \$9,303,000
- OTHER RESOURCES, \$14,522,000
 - ADDITIONS TO ENDOWMENT, \$21,000
 - GIFTS, \$239,000
 - OTHER OPERATING REVENUE, \$10,296,000
 - NON-OPERATING REVENUE, \$3,966,000
- GRANTS & CONTRACTS, \$31,457,000
 - FEDERAL, \$29,001,000
 - PRIVATE, \$1,051,000
 - STATE & LOCAL, \$659,000
 - OTHER REVENUE, \$746,000

TOTAL NET ASSETS
\$113,427,000

TOTAL ASSETS
\$131,886,000

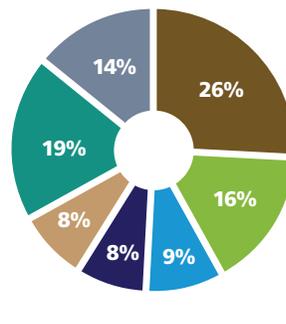
TOTAL LIABILITIES
\$18,459,000

TOTAL OPERATING EXPENSES \$50,208,000



- EMPLOYEE COMPENSATION & BENEFITS \$32,485,000
- SUPPLIES & SERVICES \$11,534,000
- DEPRECIATION \$4,908,000
- UTILITIES \$1,281,000

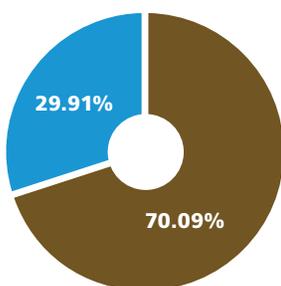
EXPENDITURE BY AREA \$39,462,392



- DEPT-ENERGY \$10,443,940
- DEPT-DEFENSE \$6,141,709
- DEPT-INTERIOR \$3,570,608
- NSF \$3,181,818
- EPA, NOAA, NASA \$3,141,274
- STATE/LOCAL GOVT. \$7,355,252
- PRIVATE, FOREIGN \$5,627,791

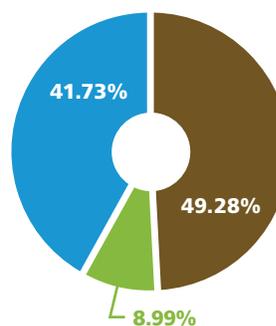
for the foundation

TOTAL REVENUE \$1,060,000



- GIFTS AND CONTRIBUTIONS \$743,000
- DRI SUPPORT \$317,000
- SPECIAL EVENTS & OTHER OPERATING REVENUE \$0

TOTAL OPERATING EXPENSES \$623,000



- CONTRIBUTED SALARIES & WAGES \$307,000
- PAYMENTS TO DRI \$260,000
- SUPPLIES & SERVICES \$56,000

mission antarctica

Students at Dilworth STEM Academy in Sparks, Nev. joined a team of scientists in Antarctica as they studied the molecular biology, and evolution of microscopic organisms. Working at Palmer Station, Antarctica, Dr. Joseph Grzymiski and his colleagues are investigating how Antarctic marine phytoplankton adapt during the transition from a cold dark winter to a warmer, brighter spring. The work, funded by the National Science Foundation, has implications for understanding impacts of climate change and the ecology and evolution of organisms in the Southern Ocean. As part of the project's mission, Grzymiski is interacting with middle school students.

"Dr. Joe, as the students call him, has been talking, e-mailing and tweeting with the students, getting them engaged in science and critical thinking at our school," said Geraldine Lemus-Yip, Dilworth science instructor and department chair. "The students are really working hard. They're excited about this, and they're spending time outside of school learning about Antarctica."

One of those students is 7th grader David Lee. Lee correctly solved the question that was posted on the Mission Antarctica website. Scientists asked the students to calculate how many gallons of seawater are in 625 meters cubed- an amount they had filtered one day while out in the field.

For correctly answering the question, David got to name the boat that the researchers use to collect samples. "I named it the Excalibur, since Discovery has been used a lot. I wanted to go with something that symbolized a great triumph and because the scientists in Antarctica use the boat to discover new things, the Excalibur just made sense."

During the course of the school year the students are emailing questions, posting tweets and following the Mission Antarctica app on their iPads that were donated by DRI.

national science foundation
grant received
\$500,000



rocking renewable energy



WIND
ENERGY



HYDROGEN
TRANSPORTATION



BIOMASS
& BIOFUELS



EDUCATION
& OUTREACH

Committed to discovering new economically and environmentally friendly energy production methods, DRI has received funding from the Department of Energy to build a Renewable Energy Experiment Facility (REEF). This unique facility consists of a modular home and site-built garage that will enable scientists to work and test experiments in a relatable living environment.

This renewable energy center will be used by DRI scientists to specialize in wind energy, integrated hydrogen power off-grid systems, hydrogen uses in transportation, biomass and biofuels, in addition to education and outreach. The garage will function as a workshop and hold a special unit that is being fabricated to convert biomass into bio-coal in an effort to find a renewable fuel for power plants. The REEF has a heating ventilation air conditioning system driven by solar thermal power, along with hydrogen, photovoltaic and wind energy for power sources. DRI's Greenpower program, sponsored by NV Energy, will be housed in this facility.

In addition, DRI established The Nell J. Redfield Foundation Post Doctoral Fellowship in Renewable Energy. With the \$500,000 support, DRI will create a nationally competitive fellowship for recent Ph.D. graduates involved in renewable energy research, science or engineering. One of the other benefits of the new fellowship is that it will support DRI's expanding renewable energy research by bringing creative researchers to Nevada.

floating in the clouds

Scientists working at DRI's Storm Peak Lab at Steamboat Springs, Colo. created a one-of-a-kind cloud experiment. The project, sponsored by the U.S. Department of Energy's Atmospheric Radiation Measurement Climate Research Facility, captured a "vertical profile" of the clouds as they moved across the mountain slopes.

"This is the first time we're seeing clouds from the top to the bottom," said Dr. Gannet Hallar, Director of Storm Peak Lab and co-principal investigator for the project. "We have the entire mountain covered with remote-sensing instruments and we also have above the mountain covered with the aircraft. This is a very unique opportunity and will lead to a valuable record of cloud data."

This data set will be crucial for validating ground-based measurements of liquid, mixed-phase, and precipitating cloud systems and to verify the accuracy of measurements used in computer models of the Earth's climate system.

To do this, scientists orchestrated by DRI's Ian McCubbin, used nearly two dozen remote-sensing instruments to take continuous measurements from three different elevations beneath Storm Peak Lab, and then verify the data at the lab.

"Some of the largest uncertainties in climate change models have to do with clouds, and, in particular, these mixed-phase clouds that are part ice and part water. Those clouds are difficult to model. We have been fortunate to collect data from heavy storm systems and thin clouds, so it's a wide-ranging perspective," Hallar said.

leading the way in atmospheric sciences

Assessment Team were honored with the EPA's Bronze Medal Award for their exceptional scientific leadership, innovation and service by transforming scientific assessments to support science-based air standards decisions.

Dr. Pitchford earned both his master's and doctoral degrees from UNR. More recently his work for NOAA brought him to DRI's Las Vegas campus, where he has served as a visiting scientist and adjunct research professor since 1992. In addition, he was the federal project officer for several DRI air quality monitoring projects including one that was designed to characterize the impact of the Mohave coal-fired power plant on the Grand Canyon.

Among Pitchford's most notable achievements is the design and leadership that he provided in creating the Interagency Monitoring of Protected Visual Environments (IMPROVE) Network, to ensure the protection of air quality and visibility standards in U.S. national parks and wilderness areas.

Dr. Marc Pitchford is the new Executive Director of the Division of Atmospheric Sciences. During the course of his career, Dr. Pitchford worked for the Environmental Protection Agency (EPA) and the National Atmospheric Association (NOAA) on planning and conducting atmospheric research programs, leading teams of scientists, implementing federal agency programs and communicating with sponsors, all of which make him an excellent asset to DRI.

Before joining DRI, Pitchford was a research scientist with NOAA's Air Resources Laboratory in the Special Operations and Research Division in Las Vegas. In 2009, Pitchford and the Integrated Science

the science of desert warfare

The 9th International Conference on Military Geosciences (ICMG), hosted by DRI Scientists Drs. Tom Bullard and Eric McDonald focused on the role of deserts in past and modern warfare, issues with management of military lands in desert regions, and how desert environmental conditions can impact military equipment and personnel. Scientists, military personnel and academics gathered in Las Vegas to collaborate and exchange ideas on current endeavors in desert terrain research.

There were dozens of conference presentations, poster presentations and historical and geological fieldtrips to the Nevada Test Site, Hoover Dam, Mormon Fort, Army Airfield Aerial Gunnery Range Site and Mt. Charleston. Previous ICMG conferences were held at Vienna, Austria (2009), Quebec City, Canada (2007), Nottingham, UK (2005), West Point, New York (2003), Greenwich, UK (2000), Toronto, Canada (1998), London, UK (1996), and Seattle, Washington (1994).

DRI scientists are currently developing a wide range of science-based information in support of military objectives. These efforts range from improving technology to detect and defeat IEDs (Improvised Explosive Devices) to evaluating the suitability of U.S. Department of Defense military testing and training installations as realistic analogs for deployment areas in desert regions.

DRI also has a long history of documenting historical military activities in the desert southwest of the United States from the 19th century, extending into WWII desert training, and continuing into the period of national defense activities during the Cold War.

in memory of Dr. James Taranik



www.dri.edu/taranik

Dr. Taranik became President of DRI in 1987. He was internationally known for his research in aerospace remote sensing, and his professional career had already included senior positions with the National Aeronautics and Space Administration (NASA), the U.S. Department of the Interior, the Iowa Geological Survey, and the University of Iowa. In 1981, he was the chief mission scientist on Space Shuttle Columbia's second flight - the first flight with a science payload.

Prior to joining DRI, Taranik served as the Dean of the University of Nevada, Reno Mackay School of Mines, where he helped raise \$28 million for the Laxalt Mineral Research Building and earthquake retrofitting of the historic Mackay School of Mines building and library. Taranik dedicated 29 years of service to the Nevada System of Higher Education.

in memory of Dr. Glenn Berger

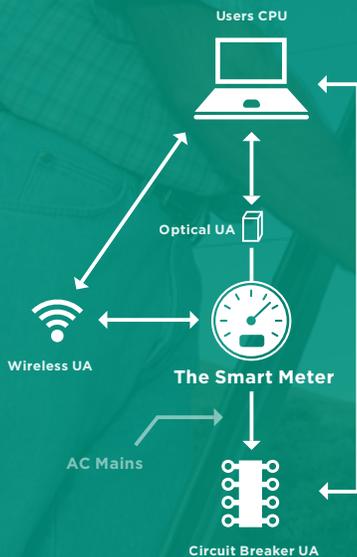


www.dri.edu/berger

The DRI community and the field of geology lost one of the great scientific minds this fall, Dr. Glenn Berger. One of the world's foremost scientists in luminescence dating, Berger's distinguished career began before his arrival at DRI in 1994. His international reputation for research in geological and environmental sciences has continued to gain momentum thanks to his work in geochronology, geoarcheology, paleoenvironmental records, applied environmental studies and optical dating.

During his career he earned The Dandini Medal of Science, DRI's highest annual recognition for scientific accomplishment. He also directed the E.L. Cord Luminescence Geochronology Laboratory, a state-of-the-art facility for conducting photonic dating of

boosting consumers energy IQ



DRI scientists Drs. Hampden Kuhns and Morien Roberts are empowering business owners and eventually residents to manage their energy consumption and adopt efficiency measures that will have measurable savings.

LoadIQ (formerly IBUCS) is a Nevada based company formed by Kuhns and Roberts whose goal was to move past the SmartGrid and into Smart Energy Consumption. The patented software and hardware gives energy customers the power to realize energy savings.

The technology involves both the hardware installed on the meter and the software that enables the utility user to view a computer read-out. The chart shows what the consumption rate was for each appliance over the course of days, weeks, and months. The algorithm that they developed can isolate 10 or more appliances for the consumer to label and track.

While the production and product roll-out is still in the beginning stages, the researchers have confirmed that the Utility Accountant software will report power usage for the top 10 appliances without the need for individual equipment to monitor each load. Their Utility Accountant software will identify peak usage periods for an appliance allowing the customer to make cost effective efficiency decisions.

enduring legacy

1946

At age 10, witnessed an ice storm that began his path of understanding the physics of ice crystals

1953

Graduated from the University of Bristol with a bachelor's degree in physics

1958

Graduated from the University of London with a Ph.D. in meteorology at Imperial College

1995

Received DRI's Dandini Medal of Science

1998

Became the first DRI researcher to receive the Nevada Board of Regents' Researcher Award

After 45 years as an atmospheric physicist at DRI, Dr. John Hallett is retiring as the longest-serving researcher at DRI. A major focus of Dr. Hallett's research throughout his career has been alleviating the risks that icing poses to aircraft. Born and raised in Bristol, England, at age 10 he witnessed an ice storm that made him wonder about the physics of ice crystals. He slept in air-raid shelters when warplanes bombed Bristol during WWII, in an era when many planes crashed due to icing.

Dr. Hallett earned a bachelor's degree in physics from the University of Bristol in 1953, then a Ph.D. in meteorology at Imperial College, at the University of London. During his time at the University of London, he met Wendell A. Mordy, a former military weather officer in World War II. Years later, in 1966, his research and acquaintance with Dr. Mordy led him to DRI, as Dr. Mordy was DRI's first director.

He holds DRI's Emeritus Edgar J. Marston Professorship of Atmospheric Physics, and is a Fellow of the American Meteorological Society. He received DRI's Dandini Medal of Science in 1995, and in 1998 he became the first DRI researcher to receive the prestigious Nevada Board of Regents' Researcher Award. He played a central role in development of the University of Nevada, Reno's atmospheric sciences graduate program, which he directed for a decade. The Dr. John Hallett endowed scholarship is a tribute to his legacy of working with graduate students.

don't miss our out-of-this-world upcoming event

25th DRI Nevada Medal

Reno Dinner

WHEN: Tuesday, April 24, 2012

WHERE: Peppermill Resort

Las Vegas Dinner

WHEN: Thursday, April 26, 2012

WHERE: Aria Resort & Casino

Recipient: Dr. Steven W. Squyres

Dr. Squyres is the Goldwin Smith Professor of Astronomy at Cornell University. His research focuses on the robotic exploration of planetary surfaces, the history of water on Mars, geophysics and tectonics of icy satellites, tectonics of Venus, and planetary gamma-ray and x-ray spectroscopy. Research for which he is best known includes study of the history and distribution of water on Mars and of the possible existence and habitability of a liquid water ocean on Europa. Dr. Squyres is currently the scientific Principal Investigator for the Mars Exploration Rover Project.



www.dri.edu/2011

reno

2215 Raggio Parkway
Reno, NV 89512

775.673.7300

las vegas

755 E. Flamingo Road
Las Vegas, NV 89119

702.862.5400

touching the universe

RESEARCH FOUNDATION BOARD OF TRUSTEES

OFFICERS

- Dan Barnett, Chair
- Chuck Creigh, Co-Vice Chair
- Lawrie Lieberman, Co-Vice Chair
- Ian Rogoff, Secretary
- John H. O. La Gatta, Treasurer
- Mike Benjamin, Past Chair

TRUSTEES

- Connie Adair
- Dr. Nazir Ansari
- Marybel Batjer
- Jeffrey L. Ceccarelli
- Kirk V. Clausen
- Gayle Crowell
- Tom E. Gallagher
- Robert E. Goff
- C. Joseph Guild III
- Kathy Hone
- Peter Kovacs
- Robert E. Lewis

- Albert Massi
- Sandy Masters
- Edwin A. Ricks
- Stephanie Tyler
- Dr. Steven Weber
- Dr. Stephen Wells
- Marlene Wheeler
- Dr. John Wojcik
- John R. Worthington

NEVADA SYSTEM OF HIGHER EDUCATION CHANCELLOR

- Daniel Klaich

NEVADA SYSTEM OF HIGHER EDUCATION BOARD OF REGENTS

- Dr. Jason Geddes, Chair
- Kevin J. Page, Vice Chair
- Mark Alden
- Dr. Andrea Anderson
- Robert Blakely
- Cedric Crear

- Dr. Mark W. Doubrava
- Ron Knecht
- James Dean Leavitt
- Kevin C. Melcher
- Dr. Jack Lund Schofield
- Rick Trachok
- Michael B. Wixom

DRI PRESIDENT'S CABINET

- Dr. Stephen G. Wells, President
- Dr. Terry Surles, Executive Vice President for Research
- Ellen Oppenheim, Interim Senior Vice President for Finance and Administration and Chief Operations Officer
- Russel Kost, Vice President for Development
- Dr. Christian Fritsen, Interim Vice President of Academic Affairs
- Ed Novak, Assistant Vice President of Information Technology, Chief Information Officer

- Peter Ross, Assistant Vice President for Campus Planning and Physical Plant

- Steve Salaber, Assistant Vice President and Controller

- Dr. Marc Pitchford, Executive Director of Division of Atmospheric Sciences

- Dr. Paul Verburg, Interim Executive Director of Division of Earth Ecosystem Sciences

- Dr. Jim Thomas, Interim Executive Director of the Division of Hydrologic Sciences

- John Albrecht, Legal Counsel: DRI and Nevada System of Higher Education

- Greg Bortolin, Director of Communications and Government Affairs

- Kelly Frank, Public Information Officer

