April, 2014

Agriculture & Biosciences

Beneath it All
Matt Morris ’14, a sustainable agriculture and food systems major, is conducting research on the relationship between corn seed treatments and weed populations. His advisor, assistant professor of agroecology Rich Smith, explained: “We know that pesticide seed treatments are reducing the fungal and insect pests of crops...but what we don’t know is if, by using these products, we are also inadvertently harming the populations of beneficial organisms that naturally help control weeds.” Morris’s project is an offshoot of the work of natural resources and the environment Ph.D. student Lesley Atwood, who is studying the impact of treated corn seeds on soil organisms and nutrient cycling.

http://colsa.unh.edu/article/spring-2014/beneath-it-all

From Field to Classroom
With financial support from UNH’s Roland H. O’Neal Professorship award, assistant professor of natural resources and the environment Stuart Grandy traveled to Uganda to conduct research on the unique clay minerals found in the region’s soil. Postdoctoral researcher Lisa Tiemann and environmental conservation and sustainability major Michael Casazza ’14 accompanied Grandy. The research will examine the effects of black carbon in Ugandan soil. Grandy explained: “I want to more deeply understand the unique soil processes there, which are key to sustaining agricultural productivity and improving people’s livelihoods.”

http://www.unh.edu/cie/newsletter/2014/spring/grandy.html

Grow Your Greens, Underwater
Professor of plant biology Christopher Neefus and Ph.D. student Lindsay Green have co-authored a guide, in collaboration with researchers from the University of Connecticut, titled New England Seaweed Culture Handbook: Nursery Culture. The book will meet the needs of New England’s emerging commercial seaweed industry and introduces
practices that also could contribute to the sustainability of ocean ecosystems. Seaweed has been shown to remediate impacts of finfish aquaculture on coastal ecosystems by taking up fish metabolic waste products – such as nitrogen, phosphorus, and carbon dioxide – and transforming them into products of value to humans and the environment: ingredients for the production of food, cosmetics, pharmaceuticals, vitamins and supplements; fertilizer; insulation; fodder; and potentially, biofuel.

http://colsa.unh.edu/article/grow-your-greens-underwater

New App to Zap Greenhouse Diseases

UNH Cooperative Extension researchers Cheryl Smith and Brian Krug have designed a mobile app, The Greenhouse Disease Control Guide, which will provide horticulturalists with easy access to organized resources on plant disease identification and treatment. The tool was created for Electronic Grower Resources Online (e-GRO), a centralized database for the commercial greenhouse industry. The new, free app is available for download at e-gro.org.

http://extension.unh.edu/articles/New-App-Zap-Greenhouse-Diseases

Number Discrimination in the Clark’s Nutcracker (Nucifraga Columbiana)

Lindsay Michaud ‘15, a biomedical science major, studied the cognitive abilities of Clark Nutcracker birds at UNH’s psychology aviary with financial support from the UNH Hamel Center’s Summer Undergraduate Research Fellowship program. Under the guidance of her mentor, associate professor of psychology Brett Gibson, Michaud studied non-human understanding of numbers by testing the Clark Nutcracker birds’ unique ability to discern amounts. Michaud reported the details of her research in Inquiry, UNH’s undergraduate research journal; she found that the birds displayed exceptional quantity discrimination abilities.

http://www.unh.edu/inquiryjournal/spring-2014/number-discrimination-clark%E2%80%99s-nutcracker-nucifraga-columbiana

Shedding Some Light

David Plachetzki, assistant professor of molecular, cellular, and biomedical sciences, studies cnidarians (a group of over 10,000 species of animals with gelatinous bodies, including the more commonly known jellyfish and hydra) to learn about humans’ deepest evolutionary ancestors. Plachetzki has received national acclaim for his specialized work, including the 2013 BioMed Central Research Award in Animal Science, Veterinary Research and Zoology for his research article on cnidocytes, the stinging cells of cnidarians. “From cnidarian research we can make inferences about a very early node in animal evolution,” Plachetzki explained. “What is shared between a hydra and a human is most likely to be very important to both species.”

http://colsa.unh.edu/article/spring-2014/shedding-some-light

Strawberry Fields Forever - N.H. Agricultural Experiment Station Researchers Find Promise In Strawberry Cultivation System

Researchers at the New Hampshire Agricultural Experiment Station (NHAES) at UNH are studying the annualized plasticulture system, a commercial strawberry production method, to evaluate its potential as a new way of farming for New England berry growers. While this technique has higher start-up costs than the more commonly used perennial matted-row production system, NHAES scientists believe that the annualized plasticulture system may produce higher crop yields and allow growers to manage soil-borne diseases through rotation. In response to a survey of growers’ needs, Matt Kochka, a master’s student in plant biology, has been working with Iago Hale, assistant professor of
specialty crop improvement, to conduct small-scale trials comparing the economics of the standard matted-row production system with those of the annual plasticulture system at Kingman Farm, one of five NHAES facilities at UNH.

http://www.unh.edu/unhtoday/strawberry-plasticulture

**Business & Technology**

**Solar-Powered Success - Five Seniors Take Home Top Prize at a National Environmental Engineering Competition**

An interdisciplinary team of UNH seniors was awarded the INTEL Innovation award for first place at the national Environmental Design Contest at New Mexico State University in April. The team, composed of three business entrepreneurship majors and two mechanical engineering majors, created Tiltone, a swiveling solar panel system for commercial buildings that can harness 22 percent more energy than current models by tilting in the direction of the sun. Peter T. Paul College of Business and Economics professor and director of the Center for Venture Research Jeffrey Sohl led the team.

http://www.unh.edu/unhtoday/solar-powered-success
http://www.unh.edu/news/releases/2014/04/bp29intel.cfm
http://www.unh.edu/campusjournal/2014/04/unh-team-wins-national-engineering-contest

**UNH Center for Venture Research: U.S. Angel Investor Market Recovery Continues on an Upward Trend in 2013**

According to the 2013 Angel Market Analysis conducted by the Center for Venture Research at UNH, the angel investor market has continued to grow since 2010. Angel investments are a source of new jobs, with roughly 4.1 jobs created from each investment. Jeffrey Sohl, Peter T. Paul College of Business and Economics professor and director of the Center for Venture Research, explained: “This increase in the seed/start-up stage is an encouraging sign since seed capital is the stage of need for our nation’s entrepreneurs.”

http://www.unh.edu/news/releases/2014/04/em30angel.cfm
http://www.unh.edu/campusjournal/2014/04/unh-center-venture-research-us-angel-investor-market-recovery-continues-upward-trend-2013

**UNH: LESI Continues to Slide as the Present and Future Outlook Remains Low**

The Lodging Executives Sentiment Index (LESI) compiled by the Department of Hospitality Management at UNH’s Peter T. Paul College of Business and Economics found that the outlook for present and future business conditions in the lodging industry has continued to slide. The LESI is managed by associate professor of hospitality management Nelson Barber, who explained: “Executive sentiment for general business conditions today and twelve months from now have weakened, along with a drop in non-managerial employment continuing a downward trend.” The monthly poll collects data from a national sample of lodging executives to predict future economic trends.

http://www.unh.edu/news/releases/2014/04/em23lesi.cfm

Credit: UNH Peter T. Paul College of Business and Economics
UNHIinnovation Head Named to National Board of Directors
UNHIinnovation executive director Marc Sedam has been named vice president of professional development for the Association of University Technology Managers (AUTM), an international group dedicated to furthering research discoveries for the benefit of society. Sedam has participated in AUTM for almost 17 years as a member, speaker, and advocate for technology transfer. Sedam now will be responsible for identifying and clarifying professional development needs and goals of the membership, and developing and implementing programs to meet those needs and goals in coordination with the board.

http://www.unh.edu/news/releases/2014/04/em09sedam.cfm

Yixin Liu, Associate Professor Finance – Greece
Yixin Liu, associate professor of finance, traveled to Greece in the fall of 2013 with the support of a travel grant from UNH’s Center for International Education. At the Hellenic American Education Center (HAEC), Liu supervised student-directed studies, a teaching method that operates on a nontraditional time schedule through weekly meetings to accommodate the careers of those enrolled in the course. In addition to widening her teaching experiences, Liu generated a number of ideas for future research through her interactions with not only business professors, but also professors from music, linguistics, and other disciplines.

http://unh.edu/cie/yixin-liu

Engineering & Physical Sciences

Professor Tapped to Investigate Washington State Landslide
Jean Benoît, professor of civil engineering, has been selected to be part of a national team that will research the devastating Oso landslide that occurred on March 22nd, 2014 in Snohomish County, Washington. Benoît, who has developed technology such as “smart rocks” – aluminum capsules filled with instrumentation that can be used to record data during experimental landslides – will study the geotechnical effects and the debris flow of the Oso landslide. “We need to better understand the mechanisms associated with debris flows. They are potentially so devastating and often unexpected,” Benoît explained.

http://www.unh.edu/news/releases/2014/04/bp09landslide.cfm
http://www.unh.edu/campusjournal/2014/04/professor-tapped-investigate-washington-state-landslide

Health, Behavioral & Social Sciences

A Nurse in Nepal: Determining Quality of Postnatal Care in the Foothills of the Himalayas
Stephanie Winn ’14, a nursing major planning a career in midwifery, traveled to Nepal with financial assistance from a UNH International Research Opportunities Program grant to study the postnatal care experiences of women in a country with high infant and maternal mortality rates and few health resources. Winn conducted interviews with 30 women in rural villages to investigate how the women’s and babies’ postnatal care compared with the standards set by the World Health Organization. She found that most of the women who participated in the study did not receive the WHO recommended services. Her report is published in Inquiry, UNH’s undergraduate research journal. Her advisor was Gene Harkless, associate professor of nursing.

A Supplemented Diet: Multivitamin Use among College Students
Leah Tully ‘14, a nutrition and wellness major, used data from UNH’s College Health and Nutrition Assessment Survey to study diet quality and multivitamin use among college students. Tully’s study group was made up of students enrolled in the introductory nutrition course NUTR 400, the majority of whom are first year students who eat their meals in dining halls on campus. She hypothesized that multivitamin users at UNH have a healthier diet than non-users, and her findings supported her prediction. Tully’s research was supervised by Jesse Stabile Morrell, a lecturer of molecular, cellular, and biomedical sciences, and was reported in Inquiry, UNH’s undergraduate research journal.

http://www.unh.edu/inquiryjournal/spring-2014/supplemented-diet-multivitamin-use-among-college-students

Carsey Institute: The Increasing Diversity of America’s Youth
The Carsey Institute at UNH has published a brief, “The Increasing Diversity of America’s Youth,” that discusses the current demographic changes among minority groups in the U.S. The brief explores reasons for the rising number of minority children and examines the declining birth rate of non-Hispanic white children. Kenneth Johnson, senior demographer at the Carsey Institute and professor of sociology, authored the brief in collaboration with Andrew Schaefer and Luke Rogers, Carsey Institute research assistants and Ph.D. candidates in sociology.

http://www.unh.edu/news/releases/2014/04/em22carsey.cfm
http://www.unh.edu/campusjournal/2014/04/carsey-institute-increasing-diversity-america%E2%80%99s-youth

Exploring the Potential for Sharia-compliant Microfinance in Underwriting Jordan’s Muslim Poor
Austin Perea ‘14, an economics and political science double major, traveled to Egypt and Jordan with the support of a UNH International Research Opportunities Program grant to study the role of microfinance in Middle Eastern economies. As reported in Inquiry, UNH’s undergraduate research journal, Perea explored how Islamic law and cultural attitudes toward money lending norms impact impoverished economies in Muslim countries. Of his experience, Perea reflected: “Conducting the research itself was particularly rewarding, but perhaps more transformative were the experiences and discussions I had with everyday Egyptians and Jordanians, especially during such a tumultuous period.” His advisor was Jeannie Sowers, associate professor of political science.


Grant to UNH Will Enhance Workforce Development for NH Child Welfare Services
UNH’s social work program has received a National Child Welfare Workforce Institute University Partnership grant to strengthen professional ties with the New Hampshire Division for Children, Youth, and Families (DCYF). The grant will support efforts to improve implementation of data-driven decision making and evidence-based practice approaches within DCYF. The project will include establishing traineeships for UNH undergraduate and graduate students at DCYF, collaboratively designing activities addressing workforce opportunities, and developing new UNH curricula with input from those currently engaged in the field. Anne Broussard and Melissa Wells, associate professors of social work, are co-principal investigators of the project.

http://www.unh.edu/news/releases/2014/04/bp02grant.cfm
Interviewing Adults with Intellectual Disabilities about Oral Health in Brisbane, Australia

Meghan Maguire ‘14, a biology major interested in pursuing a career in dentistry, traveled to Brisbane, Australia with the support of a UNH Summer Undergraduate Research Fellowship to interview adults with intellectual disabilities about their oral health beliefs and routines. In Inquiry, UNH’s undergraduate research journal, Maguire reported that while the adults with moderate intellectual disabilities whom she interviewed professed knowledge of oral health, many struggled to implement good practices in their daily lives. Maguire’s mentor was associate professor of nursing Joan Earle Hahn.


Not in My Backyard: How Citizen Attitudes and Local Politics Affect Disaster Preparedness Policies

With the support of a UNH Summer Undergraduate Research Fellowship, Tegan O’Neill ‘14, a political science major, studied how local attitudes and politics impact disaster mitigation strategies in New Hampshire’s seacoast region. In addition to interviewing local community leaders, O’Neill built a comprehensive map illustrating local risks for Rockingham and Strafford counties. She found local disaster planning to be more influenced by individual politics than quantifiable risks and conditions. O’Neill was mentored by Stacy D. VanDeveer, professor of political science, and reported the results of her research in Inquiry, UNH’s undergraduate research journal.


Poster as Propaganda

Kelly LaBrecque ‘08G wrote her interdisciplinary Master of Arts in Liberal Studies thesis on the United States’ World War I propaganda campaign. In her thesis, Persuasion by Design, LaBrecque examined posters from the perspectives of both political science and graphic design, exploring the role that art played in the nation’s readiness to go to war against the Germans. LaBrecque described the unique propaganda campaign as “possibly one of the most successful advertising campaigns to have ever been launched.”

http://cola.unh.edu/article/2014/04/poster-propaganda

Columbia, the female personification of America, is in the grip of a blood-thirsty brute representing the German Kaiser in this World War I propaganda poster designed to convince Americans to enlist. Credit: Library of Congress, LC-DIG-ds-03216

Questioning the Marshall Plan in the Buildup to the Cold War

Sam O’Brien ‘14, a history major at UNH Manchester, researched the United States’ motives for the Marshall Plan, an economic rebuilding strategy for Europe following the end of World War II, that some historians assert increased the tensions of the Cold War. Writing for Inquiry, UNH’s undergraduate research journal, O’Brien concluded: “The Marshall Plan represents a defensive measure taken by the United States to secure its previously established interests in Western Europe.” O’Brien’s advisor was John Cerullo, professor of history at UNH Manchester.

http://www.unh.edu/inquiryjournal/spring-2014/questioning-marshall-plan-buildup-cold-war
Step by Step - An Athletic Training Student Learns To Conduct Research

Amber Craft ’15, an athletic training major, completed research last summer on measuring muscle fatigue after taking INCO 590, Student Research Experience, which is designed as an entry-level apprenticeship to assist students in developing research skills and to prepare them for more advanced research. With the assistance of her mentor, professor of athletic training Ron Croce, Craft designed the research study and proposal, tested twelve subjects, analyzed the results, and collaborated on a journal article. She presented her work at UNH’s 2014 Undergraduate Research Conference and is exploring her options for graduate school in exercise science.

http://www.unh.edu/unhtoday/Biomechanics-Motor-Control-Laboratory

Susan Merrill, Clinical Assistant Professor – South Africa

Susan Merrill, clinical assistant professor of occupational therapy, traveled to South Africa with support from a UNH Center for International Education travel grant. In the Eastern Cape, the second poorest province in South Africa, Merrill presented workshops and attended meetings on understanding the brain, occupational therapy perspectives, and educational rebuilding. Merrill will return to South Africa in summer 2014 to begin a research project in collaboration with South Africa Partners, a Boston-based non-government organization that supports collaborative health and education initiatives in South Africa.

http://unh.edu/cie/susan-merrill

UNH Tapped to Help White House Task Force End Campus Sexual Assault

UNH’s Prevention Innovations, a collaborative team of researchers and practitioners who develop programs and approaches to end violence against women, has been asked to do further research for Not Alone: The First Report of the White House Task Force to Protect Students from Sexual Assault. Sharyn Potter, associate professor of sociology and co-director of Prevention Innovations, will lead the research for the White House Task Force. “The specific research will look at how presenting the same information using different delivery methods (online, in a class, via the web, in residence halls, etc.) impacts what students remember and how they use the information over time,” Potter said.

http://www.unh.edu/news/releases/2014/04/em29whitehouse.cfm
http://www.unh.edu/campusjournal/2014/04/unh-tapped-help-white-house-end-campus-sexual-assault

Vatican 2.0

Andrew Bills ’09, now a Master of Arts in Liberal Studies student, is analyzing the Vatican's use of the Internet to market the church to a younger, more global audience. Combining the fields of communication, religion, and history, his thesis, Uploading Catholicism, will explore phenomena such as Pope Francis’s first “selfie” style photograph, taken in August of 2013. “I think it’s fascinating to see how they make sense of, and leverage new technologies that they once feared,” Bills said.

http://cola.unh.edu/article/2014/04/vatican-20
Humanities & the Arts

Abandoned in the Arctic

Jeff Clark ’11G wrote his interdisciplinary Master of Arts in Liberal Studies thesis on arctic explorer Adolphus Greely. In *Arctic Ambitions*, Clark combined history, American studies, and photography to tell the “forgotten” story of Greely, who was viewed as depraved when, in 1884, accusations of cannibalism and government scandals overshadowed his scientific achievements. Clark, a retired gastroenterologist, cataloged over 100 photographs from the expedition for his thesis and produced the 2007 documentary, “Abandoned in the Arctic.”

http://cola.unh.edu/article/2014/04/abandoned-arctic

Communication Professor Featured in Oral History Project

Lawrence Prelli, professor of communication, was featured in a YouTube video produced as part of the Oral History Project of the Association for the Rhetoric of Science and Technology (ARST). Prelli’s influential book, *A Rhetoric of Science: Inventing Scientific Discourse*, was the first to be published on the topic in 1989. The Oral History Project will document ARST’s organizational history and explore how the rhetoric of science, technology, and medicine has evolved over time.

http://cola.unh.edu/article/2014/04/communication-professor-featured-oral-history-project

Confessions of a Morphologist

On April 17, professor of English and linguistics Rochelle Lieber delivered the 2014 UNH Lindberg Lecture, titled “Confessions of a Morphologist, or How I Learned to Stop Intuiting and Love Data.” Lieber’s lecture focused on corpora, which are large language databases for collecting spoken and written text. She is an author of the recent book, *The Oxford Reference Guide to English Morphology*. The Lindberg Lecture is presented annually by the winner of the Lindberg Award, which recognizes an outstanding teacher-scholar from the College of Liberal Arts at UNH.

http://cola.unh.edu/thecollegeletter/2014-04/confessions-morphologist

Credit: UNH College of Liberal Arts

Contemporary Art with Chinese Characteristics: Relations between Beijing Artists and the Chinese Government Post-1989

Jennifer Lindsay ’14, an international affairs and studio art double major, traveled to China with assistance from a UNH International Research Opportunities Program grant to study government censorship and artistic expression in China. Lindsay spent a summer living in Beijing, conducting interviews with Chinese artists while also working on her own art. In writing for *Inquiry*, UNH’s undergraduate research journal, Lindsay reflected: “I have tentatively concluded that in some ways artists in China today are freer from censorship than during the period following the Tiananmen incident in 1989.” Her advisor was David Moser, academic director of CET Beijing Chinese Studies at Beijing Capital Normal University.


An Arctic expedition led by Adolphus Greely in 1881 achieved “farthest north” and gathered thousands of scientific measurements. Rescuers, however, failed to arrive until 1884, when they found only a handful of survivors, near death, in a tent. Credit: Ensign Harlow/Schley Relief Expedition
English Professor Wins NEH Grant for Indigenous New England Writing Project

Siobhan Senier, associate professor of English, has received a grant from the National Endowment for the Humanities to support her project, “Writing of Indigenous New England: Building Partnerships for the Preservation of Regional Native American Language.” She will collaborate with regional Native American groups to create an online database of indigenous writings.


The Aristocrats

Between 1840 and 1930, many people with noticeable anatomical differences gravitated toward the museums, circuses, and carnivals where the freak show was considered a popular and legitimate form of entertainment. In her thesis, *Freaks: An Examination of Marginalized Aristocrats*, Emma Baillargeon ’09 combined approaches from the fields of communication, sociology, and history to consider how performers lived resiliently and benefited from the solidarity found in circus groups. Baillargeon noted: “Freaks are born with their trauma. They’ve already passed their test in life. They’re aristocrats.”

http://cola.unh.edu/article/2014/04/aristocrats

Space Science

Cosmic Tower of Babel

James Ryan, astrophysicist in the Space Science Center in the UNH Institute for the Study of Earth, Oceans, and Space, is converting a century’s worth of data from neutron monitoring stations into a common format for the Neutron Monitor Database (NMDB). The NMDB was created to establish an international system for representing cosmic ray data, a previously subjective field with measurement and representation approaches varying greatly from station to station around the globe. With the help of UNH undergraduate students, Ryan is standardizing data from stations on Mount Washington and in Durham, NH, Colorado, and Hawaii for inclusion in the NMDB.

http://www.eos.unh.edu/Spheres_0314/neutronmon.shtml

In Search of the Solar Black Swan

Scientists from the UNH Institute for the Study of Earth, Oceans, and Space (EOS) are leading the National Science Foundation’s Sun-to-Ice project, a five-year, interdisciplinary study exploring whether solar events such as coronal mass ejections contribute to chemical signatures in polar ice cores. A connection would mean that signals in the ice could help scientists predict a devastating “Black Swan” event – a rare, unexpected occurrence of large magnitude and consequence – that would cripple global power grids, render satellites useless, and bring modern-day society to its knees. In just the second year, the group has discovered that nitrate signatures in ice are caused by sources other than solar energetic particles, thus cannot be used to understand the sun’s history or predict future events. The Sun-to-Ice
project, which crosses the boundaries between space physics, atmospheric, and ice core science, is led by Harlan Spence, director of EOS.

http://www.eos.unh.edu/Spheres_0314/sunice.shtml

UNH Space Scientist Honored by European Geosciences Union

Noé Lugaz, research assistant professor in the UNH Institute for the Study of Earth, Oceans, and Space, has received the Arne Richter Award for Outstanding Young Scientists from the European Geosciences Union (EGU). Lugaz was recognized for his work studying coronal mass ejections, which are eruptions on the sun that can impact technology on Earth. He has been involved in the STEREO mission, a NASA initiative to construct three-dimensional views of the sun using satellite-mounted instrumentation built at UNH. Lugaz accepted his award and delivered the award lecture at the EGU 2014 General Assembly meeting in Vienna, Austria.

http://www.unh.edu/campusjournal/2014/04/unh-space-scientist-honored-european-geosciences-union

Sustainability & the Environment

A Student Researcher Travels to Spain to Understand the Atlantic Bluefin Tuna Fishery

Daniel Zotos ’14, a political science and international affairs major, traveled to Barcelona with assistance from the UNH Hamel Center for Undergraduate Research to study fishery management policies and the depletion of Bluefin tuna along the coast of Spain. Under the guidance of his mentors, UNH professor of history Jeffrey Bolster and Sergi Tudela, head of fisheries for the World Wildlife Fund Mediterranean, Zotos conducted interviews with local fishermen in Spain to understand the various methods for capturing and the laws protecting this struggling fish. He was encouraged by his findings, recognizing the strength of recent quota restrictions to sustain the species.

http://www.unh.edu/unhtoday/2014/04/survival-fish-story

Back to the Future (Part Two)

In part two of an interview for Spheres Online, climate modeler Matthew Huber, a professor of Earth sciences in the UNH Institute for the Study of Earth, Oceans, and Space, discussed his work and views on the importance of studying paleoclimatology, or the history of the Earth’s climate, to better understand our changing weather patterns today. He also explained the value of research that remains actively engaged with the public, and the ethical dilemma of communicating uncertain findings in a productive way.

http://www.eos.unh.edu/Spheres_0314/huber2.shtml

Joel Johnson, Associate Professor of Geology – Sweden

With funding from a UNH Faculty International Development Grant, Joel Johnson, associate professor of geology, served as a research mentor for undergraduate students on a National Science Foundation Research Experience for Undergraduates trip to the Stordalen Mire research site in subarctic Sweden. As part of a team comprised of researchers and students from UNH and other universities, Johnson’s group studied changes in the shallow lake sedimentary environment caused by melting permafrost.

http://unh.edu/cie/joel-johnson

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Renaissance Woman: EOS Researcher Goes From Reading T.S. Eliot at Harvard to Running Earth System Mathematical Models

Katharine Duderstadt, a research scientist in the Earth Systems Research Center in the UNH Institute for the Study of Earth, Oceans, and Space, quickly became adept at her new task of managing the Whole Atmosphere Climate Community Model for the National Science Foundation-supported Sun-to-Ice project, a five-year study of the relationship between solar flares and climate history markers preserved in ice cores. In addition to her work as a climate modeler, Duderstadt holds a bachelor’s degree in English from Harvard University and a Ph.D. in atmospheric and space science from the University of Michigan. She served in the Peace Corps, has taught high school physics, and is mother to two daughters with husband Nathan Schwadron, an astrophysicist in the UNH Space Science Center and co-member of the Sun-to-Ice project team. Of her dynamic and impressive background, Duderstadt said: “You take whatever opportunities come along, and I tend to become interested in whatever I’m doing at the time.”

http://www.eos.unh.edu/Spheres_0314/duderstadt.shtml

State of Flux

With funding from the National Science Foundation, the NH EPSCoR Ecosystems and Society project has installed four new state-of-the-art “eddy” towers to study land-use/land-cover interactions with climate to better assess climate conditions in NH under future change scenarios. Managed by Andrew Ouimette, a research scientist in the Earth Systems Research Center in the UNH Institute for the Study of Earth, Oceans, and Space, the towers have been placed strategically in forest, field, farmland, and urban/residential environments to measure changes in CO₂ and water in turbulent air. Ouimette explained: “The towers allow us to very accurately measure how these different landscapes ‘breathe and sweat’ and reflect light and heat throughout the day and night as environmental conditions change. The effect of land cover on both local and larger scale climate processes is a result of all three of these processes.”

http://www.eos.unh.edu/Spheres_0314/flux.shtml

Touchdown in the Ozone

Barry Rock, professor emeritus of natural resources in the Earth Systems Research Center in the UNH Institute for the Study of Earth, Oceans, and Space, and founder of UNH’s Forest Watch program, has found that 20 year’s worth of data collected by K-12 students and their teachers mirrors conclusions drawn by state officials. While the Forest Watch analysis had shown that tree vigor is tied to improved air quality, it wasn’t until he examined ozone, or smog, records from the NH Department of Environmental Services Air Resources Division that Rock discovered that the pattern of steadily declining ozone levels since 1991 fits the year-to-year improvements in white pine health documented by Forest Watch. Rock noted: “Here’s a great example of federal and state regulations...having a dramatic, positive impact on air quality and white pine health.”

http://www.eos.unh.edu/Spheres_0314/forestwatch.shtml
UNH Reports: New Hampshire Getting Warmer, Wetter as Climate Changes

Cameron Wake, research associate professor in the UNH Institute for the Study of Earth, Oceans, and Space and director of Climate Solutions for New England, was lead author on two new reports which predict that by the mid-21st century, temperatures in New Hampshire will rise by 3 to 5 degrees Fahrenheit, and extreme precipitation events will double. The reports, *Climate Change in New Hampshire: Past, Present, and Future*, were commissioned by the Granite State Future project and cover northern and southern New Hampshire. They are intended to provide decision-relevant information as municipalities and regions face challenging choices regarding future investments.

http://www.unh.edu/news/releases/2014/04/ds04climate.cfm
http://www.unh.edu/campusjournal/2014/04/unh-reports-nh-getting-warmer-wetter-climate-changes

UNH Student Project Diverts Nitrogen-Rich Urine from Great Bay to Farm Field

Four UNH seniors carried out a project called “Durham Urine Diversion & Recycle” in which they harvested urine from college students in an effort to create fertilizer for agricultural use while cutting down on the amount of sewage waste entering the Great Bay. Business major Liz McCrary ’14 and environmental engineering students Taylor Walter ’14, Alyson Packhem ’14, and Adam Carignan ’14 developed the project with support from their mentors, professor of environmental engineering Nancy Kinner and Durham town engineer David Cedarholm ’94G. The team built a custom Porta-Potty nicknamed the “Peebus,” set it up in a central parking lot, and experienced great success in gathering donations from students on weekend evenings. Local farmers already have expressed interest in testing the human urine-derived fertilizer on their hay fields.

http://www.unh.edu/unhtoday/reduce-reuse-peecycle
http://www.unh.edu/news/releases/2014/04/bp10diversion.cfm
http://www.unh.edu/campusjournal/2014/04/student-project-makes-use-nitrogen-rich-urine

UNH Updates Coastal Flood Hazard Maps for NH Communities

As part of the FEMA (Federal Emergency Management Agency) nationwide program to update coastal flood hazard maps, coastal New Hampshire communities in Strafford and Rockingham counties have received updated preliminary flood hazard maps created with data from UNH. The maps are the result of a long-term study led by the N.H. Geographically Referenced Analysis and Information Transfer System (GRANIT). The new maps use the latest state-of-the-art technologies to inform citizens about flooding risks in their local communities. Fay Rubin, GRANIT director and project director in the Earth Systems Research Center in the UNH Institute for the Study of Earth, Oceans, and Space, said: “We now have topographical data that provides for a very accurate representation of the landscape.” NH GRANIT is a collaborative effort between UNH and the NH Office of Energy and Planning to create, maintain, and make available a statewide geographic database serving the information needs of state, regional, and local decision-makers.

http://www.unh.edu/news/releases/2014/04/ds22mapping.cfm

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