UMass Lowell Researchers Shine Light on Science of Eclipse

National Science Foundation-funded Research Studies Effects of Space Weather

The rare total solar eclipse that swept across the U.S. in August was a boon for UMass Lowell researchers. While millions of Americans were watching the phenomenon, faculty from the Lowell Center for Space Science and Technology (LoCSST) took advantage of the unique conditions to study how space weather affects things like GPS navigation, shortwave radio and satellite communications.

LoCSST’s director, Physics Prof. Supriya Chakrabarti, and physics Asst. Prof. Timothy Cook traveled to Jackson, Wyo., which was in the swath of the country that experienced a total blocking of the sun. There, they used a custom-built instrument called the High Throughput and Multi-slit Imaging Spectrograph, or HiT&MIS, to study changes in the upper atmosphere. Graduate students Saurav Aryal and George Geddes used a second HiT&MIS to conduct a similar experiment near Carbondale, Ill., which was also in the eclipse’s path of totality. The research was supported by the National Science Foundation.

“HiT&MIS can detect faint emissions from atoms and molecules such as oxygen, nitrogen and hydrogen,” said Susanna Finn, a LoCSST scientist who is the principal investigator for the center’s eclipse research. The instruments can observe the emissions during both day and night, so during the eclipse, the rapid changes in the atmosphere as the sky went from daylight to darkness and back to daylight were seamlessly captured.

The researchers are now analyzing the data they recorded. Finn, who viewed the total eclipse from Ochoco National Forest in central Oregon, said the experience of watching the phenomenon exceeded her expectations. “The two minutes flew by, and it almost seemed like a dream. I can see why so many people become eclipse chasers,” she said.

Edwin Aguirre, a senior science writer in the Office of University Relations, and his wife, Imelda Joson, traveled to Riverton, Wyo., to view the total eclipse and shoot photos for the “Eclipse Megamovie,” a project launched by Google and the University of California Berkeley. The project’s goal is to aggregate pictures of the eclipse from more than 1,000 volunteer photographers and amateur astronomers. The images will help scientists study the dynamics of the sun’s inner corona and measure the size of the sun with better precision.

The August event marked the first time in nearly 100 years that a total eclipse was visible coast-to-coast in the U.S. In the weeks leading up to the event, interest in the UML researchers’ work was intense, generating extensive news coverage.

On campus, where nearly two-thirds of the sun was covered by the moon at the peak of the eclipse, students, faculty, staff and visitors gathered on North Campus to view the phenomenon as it unfolded. Solar glasses for safe viewing were available, and a telescope was set up to provide closer looks.
Learning with Purpose

Master’s Students Help High School Seniors Graduate

Three-week Class Inspires Lowell High Students

Nearing the end of their senior year, 12 Lowell High School students struggling with their English classes were at risk of not graduating. Some were in advanced classes but had fallen behind, some were English as a Second Language students trying to master a new language and others were a few credits shy of graduation requirements.

Enter three graduate students from UMass Lowell’s College of Education: Bridget O’Brien, Brie Parent and Kirstin Alfonso. The education master’s degree candidates taught a three-week English course for the Lowell High School students.

For the graduate students, the teaching was as much a learning experience as it was for the high school students. They quickly learned how to adjust their teaching methods for each academic level, instill confidence in their students and spark interest in the classroom.

With much hard work, all 12 Lowell High School students passed the course and earned their diplomas.

“This experience was stressful, rewarding and fulfilling,” says O’Brien, who expects to earn a master’s in secondary education with a concentration in English in 2018. “This was a course with real consequences for people’s lives.”

The UML students wrote the curriculum, researched the teaching materials, taught the classes and designed and scored all the assessments. They met with the students individually, letting each one know that they believed he or she had the ability to succeed. As a result of the class, some of the high school students plan on continuing their education and applying to college.

Parent says that the experience took her out of her comfort zone. “By the end of the three-week course, I had learned more about teaching and myself than would have ever been possible had this course taken place in an ordinary classroom setting,” she says.

A Dozen First-year Students Win Nisei Scholarships

Fund Helps Students of Southeast Asian Ancestry Continue Their Education

A dozen incoming first-year students have been awarded scholarships by the Nisei Student Relocation Commemorative Fund, which helps students of Southeast Asian ancestry pay for college.

The scholarships are intended to help boost the rate of Southeast Asian-Americans who go to college, says Assoc. Prof. of Education Phitsamay Uy, who is on the Nisei Fund’s national board and served as the local chairwoman for this year’s awards committee.

The students come from around Massachusetts. Nearly all are first-generation college students, and many are from Lowell, which has the second-largest Cambodian-American community in the nation.

The scholarship fund honors efforts during World War II by the National Japanese American Student Relocation Council to get college-age, second-generation Japanese-Americans, known as Nisei, released from internment camps so they could complete their college educations.

This year, 20 named scholarships for $2,000 apiece and 15 general $1,000 scholarships were awarded to a total of 35 students from Massachusetts and Rhode Island.

Sivheng Kim of Lowell will use her $2,000 scholarship to help pay for her nursing studies. She wants to become a nurse practitioner to help people like her grandmother, who died of a heart attack in rural Cambodia.

“I want to do everything I can to make a difference in the world, so that people like my grandmother can have access to quality health care,” Kim wrote in her scholarship application.
University and City Ink Historic Master Agreement

Pact Formalizes UML’s Contributions to City on Infrastructure, Public Safety

The university and the City of Lowell signed a historic master agreement that affirms cooperation on efforts from infrastructure improvements to snow removal and economic development.


Initiated by UMass Lowell, the master agreement formalizes the many contributions that the university routinely provides to the city and its residents as well as support for specific projects, including a 20-year commitment to contribute to the repairs to several city bridges. The university’s $3 million pledge to the project will go toward matching funds for a $13.4 million federal Transportation Investment Generating Economic Recovery (TIGER) grant, secured with Markey’s assistance. UMass Lowell is also committing $1.6 million to repairs to a city-owned parking garage shared by the university.

Chancellor William Hogan

Former UMass Lowell Chancellor William Hogan, who passed away in June, will be honored at an Oct. 13 campus reception.

University Remembers Former Chancellor William Hogan

October Reception to Honor His Legacy; Scholarship is Established

On Friday, Oct. 13, UMass Lowell will host a reception celebrating the life and career of former UMass Lowell Chancellor William Hogan, who passed away on June 28.

“Across more than four decades at the Lowell Technological Institute, the University of Lowell and the University of Massachusetts Lowell, Dr. William T. Hogan led the transformation of an institution that is now among the strongest public research universities in the country,” says Chancellor Jacquie Moloney.

From an early age, it was clear that Bill Hogan was going places. As a 9-year-old growing up in Lowell, he got a paper route to save money for college. After earning an engineering degree at Northeastern, he was chosen for a team of U.S. Army scientists and engineers working to develop America’s space program. Following his military service, he earned his Ph.D. at MIT.

The sky was literally the limit for Hogan, yet he made it his work to help others soar. First as a faculty member, then as dean of the engineering school and president of the University of Lowell, he worked to expand opportunities for students and to strengthen academic and research programs. In 1991, he became the first chancellor of UMass Lowell.

UMass President Marty Meehan says Hogan “reimagined and redefined the university as an engine for economic development that would not only advance the regional economy, but build the industries he knew would be critical to the future of the entire Commonwealth. He also created a model for city-university partnership with the city of Lowell that to this day remains crucial to the success of each.”

The Oct. 13 reception will be held at the UMass Lowell Inn & Conference Center from 10 to 11 a.m. Contributions can also be made to the Chancellor William T. Hogan Scholarship Fund for Innovation and Engagement at alumni.uml.edu/HoganScholarship. The university will match the first $100,000 in contributions.

From the University

The National Institutes of Health (NIH) has awarded Asst. Prof. of Public Health Natalia Palacios a $2.1 million, five-year grant to study the relationship between gut bacteria and the risk of Parkinson’s disease.

“This will be the largest study to date on the gut microbiome and Parkinson’s disease,” says Palacios. “My hope is that this research will advance our understanding of how the human gut microbiome contributes to the onset of Parkinson’s.”

Nearly a million people in the U.S. are living with Parkinson’s disease, the cause of which is not known. With no cure, Parkinson’s is currently treated with medication and surgery that only helps manage the disease symptoms.

Current research shows that years before people with Parkinson’s disease are diagnosed, the vast majority of them experience various types of gastrointestinal problems. Recently, scientists have discovered that certain proteins associated with Parkinson’s are found in the gut before they can be seen in the brain.

In this new study, the research team will compare the gut bacteria of people in the earliest stages of the disease to those without the disease.

If a specific bacterial pattern does exist for people in the early stages of the disease, it may be possible for people to be diagnosed earlier and targeted for clinical trials of new drugs.

“A better understanding of the role that the microbiome plays in Parkinson’s disease will hopefully bring us closer to a cure for this devastating disease,” says Palacios.

Another goal of the research is to better understand why previous studies have shown that people who drink coffee and smoke may be protected from getting Parkinson’s disease.

The NIH awarded Asst. Prof. of Public Health Natalia Palacios a grant to study the relationship between gut bacteria and the risk of Parkinson’s disease.
UMass Lowell welcomed its largest-ever group of incoming students—more than 3,200 freshmen and new transfers—at Convocation on Tuesday, Sept. 5 at the Tsongas Center at UMass Lowell.

Activist Benjamin O’Keefe, left, with UMass Lowell Chancellor Jacquie Moloney, delivered the event’s keynote address, advising students to find their voice and use it to uplift others.

Students show off their new T-shirts, which list River Hawk values.

UMass Lowell Welcomes Class of 2021, Celebrates Record Enrollment

New Academic Year Kicks Off with Largest-ever Group of New Students

UMass Lowell celebrated the start of the new academic year and welcomed the university’s largest and most diverse group of new students, symbols of the institution’s record growth.

For the first time, total enrollment at the university reached 18,000, with more than 3,200 new first-year and transfer students arriving for the fall semester, the largest number in university history.

Through record numbers of new students every year since 2007 and rising student success rates—including an 86.6 percent continuation rate for freshmen—UMass Lowell has increased enrollment by 55 percent, more than 6,300 students, in 10 years.

“You are attending UMass Lowell at an incredible time in the university’s history,” Chancellor Jacqueline Moloney told new students at the Convocation ceremony at the Tsongas Center at UMass Lowell.

She pointed to the 14 new properties the university has opened since 2009, including state-of-the-art academic and research buildings, new residence halls and student centers, as well as the university’s rise in rankings.

Convocation served as the official welcome for the Class of 2021, which includes more than 600 new Honors College students. They are now part of the 1,670-student Honors College, the largest number in the college’s history. Overall, the new students are the most diverse group to enroll at UMass Lowell, with 34 percent who identify themselves as being from underrepresented populations.

UMass Lowell is as proud of the inclusive culture of the university community as it is of continued growth, Moloney told the students.

“Here, we are united in our commitment to working with you to make sure that your education is transformational, and to engaging with you in research and service learning that enables you to make a difference,” she said. “We celebrate our differences and believe that our diversity is one of our greatest strengths.”

In his keynote address, 23-year-old activist Benjamin O’Keefe, whose work to end size-based discrimination by retailers grew into a global movement, shared his experience about the power of young voices to create change in their lives and the lives of others.

O’Keefe told the audience about the difficulties he faced growing up, including the bullying that led him to attempt suicide in eighth grade. He encouraged students to be inclusive and to speak up to help others, especially those marginalized by society.

“We all have a story, and our stories have the power to change someone else’s story and then to change the world,” said O’Keefe, who has worked for MoveOn.org and now runs his own production company. “This is more than a campus; this is a community of people who are responsible to each other.”

Following Convocation, UMass Lowell representatives including Moloney, Associate Vice Chancellor for Student Affairs and Events Laurence Siegel and student Maria Condon, a nutritional sciences major from Burlington, joined Lowell Mayor Edward Kennedy and City Manager Kevin Murphy to celebrate the opening of River Hawk Village. The new residential complex welcomed more than 780 residents this fall.

Overall, 88 percent of this year’s incoming freshmen live in university housing, up from 81 percent in 2016. Research shows that students who live on campus are more successful academically and are more connected to their institution. This year, more than 4,900 students live in UMass Lowell’s residence halls and more than 1,700 of residents participate in living-learning communities based on shared interests and studies.