How to Contribute to the Department:
Contribute in one of the following ways to help our students learn, our department grow, and our research expand.

Contribute Time:
Are you a researcher or professor or expert in Atmospheric Sciences or a related topic? We’d love to have you give a seminar in your area of expertise. Please email atmos-info@lists.utah.edu if you’d like to sign up.

Are you an alumni whose company has job or internship opportunities for students from our department? Please let us know about these chances for our students to grow and learn from you. Please email atmos-info@lists.utah.edu if you have an opportunity for our students.

Contribute Experience:
What has your career been like since you left our program? Would you be willing to share information about it with our students?

Could your company give our juniors or seniors a tour of resources or equipment used in Atmospheric Sciences or a related field? Please email atmos-info@lists.utah.edu if you have an opportunity or information to share with our students.

Contribute Financially:
Financial donations allow our department to purchase new equipment, computers, and resources for our students. They also help fund our student-run Ute Weather Center and scholarships given to our undergraduates.

Donations may be made online here: https://umarket.utah.edu/uigina/index.php?gift_id=107. If you would like your donation to go to a specific departmental fund or endowment, please note this in the “Special Instructions” box. Thank you for your generosity and support.

If you would prefer to mail your donation to our office, please send a check payable to The Department of Atmospheric Sciences to:

The Department of Atmospheric Sciences
Salt Lake City, UT 84112-0110
Dept. of Atmospheric Sciences
135 S. 1460 E, Rm 819
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• Student Highlights
• 2016 AMS Annual Meeting
• University of Utah Distinguished Alumni Award Winner Fred Lewis
• PM2.5 Study
• Weather Warehouse
• The Ute Weather Center Updates

Alumni Award Winner Fred Lewis

For more information please contact:

By Department Chair, Dr. Kevin Perry
kevin.perry@utah.edu

Now that we are approaching the end of the Spring semester (and I have completed the budget for next year), I can begin to reflect on what a remarkable year it has been. We began the year with the largest incoming graduate class in the history of the department and end with the third largest number of BS degrees conferred in the last 30 years. In the interim, our faculty won two prestigious national awards and set a new record for research expenditures with more than $4.3 million spent on research projects during the academic year. In addition, five of our students won awards from national and regional organizations and one of our alumni, Dr. Fred Lewis, was recognized with the University Distinguished Alumni Award. Although I’d love to take the credit for these achievements, it is the hard work of individual faculty members, students, and alumni that have brought these honors to the Department.

As always, the faculty remain committed to providing the best possible educational experience for our students. They accomplish this through innovative pedagogy and periodic adjustments to the curriculum. For example, this year marked our first completely flipped course. For those who haven’t heard the term before, a flipped course is one in which short videotaped lectures are viewed by the students before class and the in-class time is instead devoted to active learning exercises, problem solving activities, and group discussions. Although it was scary at first for both the students and the instructor, the end result was significantly improved student performance. Another big change in the curriculum this year was the demise of the written qualifying exam for our first year graduate students. The faculty worked with the graduate students to devise an alternative approach which assesses both academic performance and research aptitude/potential (See below for details).
Dr. Fred Lewis Receives the University Distinguished Alumni Award

To commemorate the founding of the University of Utah in 1850, the Alumni Association each year recognizes alumni and honorary alumni who have distinguished themselves professionally, served the local and national communities, and supported the University in its mission. The annual distinguished and honorary alumni awards, along with honorary degrees, are the highest honor awarded by the University of Utah. The Department of Atmospheric Sciences was ecstatic when it was announced that one of our alumni, Fred P. Lewis (BS 1973 and PhD 1979) had been selected to receive the Distinguished Alumni Award.

Dr. Fred Lewis is a retired Brigadier General and renowned meteorologist with 30-plus years of service in the U.S. Air Force. Dr. Lewis earned a B.S. in Physics from the University of Arizona in 1972, a B.S. in Meteorology from the University of Utah in 1973, and a Ph.D. in Meteorology with emphasis in Numerical Weather Prediction from the University of Utah in 1979. He served as an Officer in the U.S. Air Force from 1972 to 2000 and retired at the rank of Brigadier General. Dr. Lewis served again within the US Air Force as a Senior Executive Service (SES) Civilian from 2005 to 2013. Dr. Lewis has served as the Senior Vice President of Sutron’s Weather Solutions (MetStar) Division since July of 2013.

While a Brigadier General, Dr. Lewis served as the U.S. Air Force Director of Weather from 1996-2000, where he led efforts to implement the transformation of the Air Force’s weather functional area that significantly improved weather support for operators worldwide. As a SES Civilian, Dr. Lewis served as the Deputy Director of Distribution Portfolio Management, U.S. Transportation Command from 2007 through 2013. In this role, he also directed the integrated strategic planning process and served as a lead for contingency planning.

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Dr. Lewis’ presentation was titled, “WRF Simulation of a Summer Ozone Event in the Salt Lake Valley.” This study aimed to investigate the coupling of chemical and meteorological processes driving the PM pollution in the Salt Lake Valley. Because of the complex nature of this issue, the researchers used an integrated approach based on observations from multiple sources. They found that one of the main factors contributing to elevated PM levels near the surface is the coupling between chemical and meteorological processes. This study was published in the American Meteorological Society’s journal and is available for further reading.

PM2.5 Study

By Dr. Mukh Basanderaj, Utah Division of Air Quality

Valleys along the Wasatch Mountains (Cache, Salt Lake and Utah) experience high levels of particulate matter (PM) in winter months and are currently designated as a non-attainment area for particulate matter with diameters less than 2.5 microns (PM2.5). The chemical aspects of these pollution episodes are not well characterized. In order to fill this gap in our knowledge, researchers from Utah Department of Environmental Quality (DEQ), University of Utah (UofU), Utah State University (USU), Weber State University (WSU), and the Chemical Sciences Division (CSD) of the National Oceanic and Atmospheric Administration, conducted a study on wintertime PM pollution in the Salt Lake Valley (SLV) between December 2015 and February 2016. This study aimed to investigate the coupling of chemical and meteorological processes driving the PM pollution in the Salt Lake Valley. Because of the complex nature of this issue, the researchers used an integrated approach based on observations from multiple sources. They found that one of the main factors contributing to elevated PM levels near the surface is the coupling between chemical and meteorological processes. This study was published in the American Meteorological Society’s journal and is available for further reading.

This study provides invaluable information on how the pollutants vary spatially and vertically, how they evolve with time, and which mechanism controls the precursor chemistry. Data quality and processing are currently underway. The preliminary results suggest an importance of the coupling between meteorology and chemistry; in particular a nitrate chemistry that occurs in the air during the period of a potential downward mixing of particulate matter to create elevated PM levels near the surface. Detailed analysis and more extensive vertical measurements of the species relevant to the PM formation including ammonia and nitric acid are needed for better understanding of the chemical mechanism of PM formation.

Donor Recognition

The students, staff, and faculty of the Department of Atmospheric Sciences gratefully acknowledge the support of the following individuals. Large or small, your donations enhance the quality of our program and education of our students.


dr. norihiko Fukuta endowed memorial fund

Dr. Steven Brown, scientist from NOAA, Boulder, CO. Prof. John Lin (UofU) and Prof. John Sohl (WSU) were responsible for the mobile and aerostat measurements of the species relevant to the PM formation. Detailed analysis and more extensive vertical measurements of the species relevant to the PM formation including ammonia and nitric acid are needed for better understanding of the chemical mechanism of PM formation.

Top: Sandy McDonald & Jan Peeples, Joe Young, Nola Lucke, John Horel, John Lin, Alex Jacques, Kim Jacob, and Chris Golz; Shuqun Zhang & Zhaohe Pu; Center: Jeff Fitzgerald; Bottom: Ed & Marilyn Zipper; Tom Garrett & John Lin; Luke Jciatan-Harasztz

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PM2.5 Study

By Dr. Munkh Baasandorj, Utah Division of Air Quality

Valleys along the Wasatch Mountains (Cache, Salt Lake and Utah) experience high levels of particulate matter (PM) in wintertime and are currently designated as non-attainment areas by the Utah Air Quality Division. The Wasatch Front is a key region for the formation of PM, which can affect public health and visibility.

Center: Jeff Fitzgeral.

Student Highlights:

M5 Candidate Brian Blaylock won the second place oral presentation award from the American Meteorological Society Committee on Meteorological Aspects of Air Pollution (CMAAP) for his talk at the 19th Conference on Air Pollution Meteorology. Brian’s presentation was titled, “WRF Simulation of a Summer Ozone Event in the Salt Lake Valley Initiated from HRRR Analyses.”

PhD Candidate Quentin Coopman won an Outstanding Student Paper award at the American Geophysical Union Fall meeting 2015. Quentin’s poster was titled, “Effect of long-range aerosol transport on the microphysical properties of low-level Arctic clouds.”

M5 Candidate Ben Fasoli won the 2016 Utah Sustainability Leadership Campus Living Lab Award, which is given to campus members who demonstrate a commitment to furthering research and leadership in the field of sustainability.

PhD Candidate Alex Jacques won 1st place in the AMS 32nd Environmental Information Processing Technology (EPT) Conference Student Competition. Alex’s poster was titled “Mobile Air Quality Measurements on Light Rail and Helicopter.”

Ph.D candidate Derek Mallia won the 2016 Doyle W. Stephens Scholarship from the Friends of the Utah State University Geophysical Union.

Donor Recognition

Friends and Alums

The students, staff, and faculty of the Department of Atmospheric Sciences gratefully acknowledge the support of the following endowments:

Endowments:

• Dr. Norihiko Fukuta Endowed Memorial Fund
• The George & Christine Wilkerson Endowed Scholarship
• The Dell Vaughn & Harriet Rose McDonald Atmospheric Sciences Awards Dinner Endowment Fund
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• The George & Christine Wilkerson Endowed Scholarship
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Memorial Funds:

• Dr. Norichika Fukuto Endowed Memorial Fund
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Introducing the Weather Warehouse

You can now buy Department apparel and swag on our new UMarket website. We have t-shirts, polos, oxfords, blankets, and a swag grab bag available for purchase. If you’d like to order anything, visit the following website and make your selections: https://umarket.utah.edu/377/ atmosphericsciences/

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Ute Weather Center Updates
By Michelle Brooks, Academic Advisor

The Ute Weather Center (UWC) has undergone many changes in the last few months. From changes in staff to a new weather center location, the only thing that’s stayed the same is the unpredictability of the weather the students forecast. Karlie Rees (junior) is in her second year as Director of the UWC, but her entire staff is new. Staffing changes were made during the fall semester to allow a new crop of students the chance to lead the UWC and gain valuable skills. Kai Tawa (sophomore) is the Assistant Director, Cole Osborne (junior) is the Chief Meteorologist, Spencer Tangen (junior) is the Senior Meteorologist, and Andrew Lambert (sophomore) is the Programmer for the 2015-2016 year. UWC Director and Assistant Director positions are held for two years, and the other staff positions are held for a period of one year. After the end of their staff appointment, students have the opportunity to apply for a different staff position if they choose, or can continue on with the UWC as a volunteer.

In addition, we have four new interns who are gaining credit for the Atmospheric Sciences bachelors degree while also learning about forecasting, social media, broadcast meteorology, and computer programming. Our 2015-2016 interns are Jennifer Greenwood (junior), Andrew Lambert (sophomore), Thomas James (freshman), and Caitlinn Taylor (freshman).

In addition to all of these staffing changes, the Ute Weather Center outgrew their seventh floor office and moved up to the eighth floor of the William Browning Building. With more than a third of all the undergraduates in our program participating in the UWC as staff, interns, or volunteers, it was time for a bigger and better space. Their old office on the seventh floor is now the Ute Weather Broadcast Center, where students can gain experience filming, editing, and directing weather broadcasts.

To view student weather broadcasts and current forecasts, please visit www.forecast.utah.edu.

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