College of Biological, Mathematical and Physical Sciences Volume 17, 2009

THE OHIO STATE UNIVERSITY

DEPARTMENT of STATISTICS NEWS

Statisticians go to Washington *by Mark Berliner*

The issues of climate change are difficult challenges to policy makers. One difficulty arises because of the large number of uncertainties associated with various aspects of climate change. Hence, statistical reasoning plays fundamental roles in climate science and should play a role in climate change policy development. To demonstrate the value of statisticians in this context, the American Statistical Association formed its Climate Change Policy Advisory Committee, co-chaired by Amy Braverman, NASA-JPL, and Mark Berliner, Ohio State University, and operated with the invaluable help of Steve Pierson, ASA Director of Science Policy. The goals of the committee are to (1) help policy makers understand and assess statistical analyses and conclusions regarding climate change, and (2) raise awareness of statistical science and scientists.

Our primary contacts have been with U.S. Congressional committee staffers and with members of the Congressional Science Service. We have also made contact with researchers at the U.S. Environmental Protection Agency (EPA), as well as with groups similar to ours representing sister scientific societies such as the American Association for the Advancement of Science and the American Physical Society.

To set some perspective, the generally accepted status of climate change science as expressed by the Intergovernmental Panel on Climate Change (IPCC) is that warming of the climate system is "unequivocal" and is "very likely" caused by human activities. The usage of the phrase "very likely" in IPCC statements is their code for "probability > .90." Similar conclusions can be found in publications of the U.S. Global Change Research Program, U.S. EPA, and other research groups. However, these suggestions do not by themselves dictate policy. Rather, quantification of uncertainties in climate behavior and its impacts as well as future behavior of humans (e.g., emissions) lies at the heart of policy making. Policy makers seek to balance unknown (i) costs of remediation and (ii) costs of impacts of climate change. (Of course, political issues also enter the motivations of members of Congress.) That is, the problem is one of decision making in the presence of uncertainty, a phrase often used as a definition of the discipline of statistics.

Through a series of conference calls and visits to Congress, we offer explanations of statistics and uncertainty, review/comment on issues involving statistics, offer and decision support. We have been asked about the reliability of the science related to the claims of anthropogenic climate change (e.g., Are the data sufficient to support the conclusions? What else is needed?); statistical information about related issues (e.g., global oil budget, economics and energy, local/constituency impacts of climate change and associated legislation); and for clarifications regarding apparent differing views among scientists about the role of human activities in climate change.

A few selected and brief examples indicate the sort of issues we address. First, a major theme of our efforts involves clarification of the sources and quantifications of uncertainty, and how to respond to those quantifications. The problems are difficult in the climate change context because there are multiple sources and treatments of uncertainty as well as the need to bridge many disciplines (e.g., physics, chemistry, biology, economics, engineering, etc.). For example, what does the aforementioned probability statement of the IPCC mean and how did they come up with it? IPCC lists a variety of sources of uncertainty: natural unpredictability of the chaotic climate system as well as that of human systems; incomplete science and imperfect models; and data errors, incomplete/inappropriate data, and parameter uncertainties. Faced with such a difficult problem, quantification of uncertainty involves "weight of evidence" considerations based on data, models, and expert judgment. A recurring point is that uncertainty does not equal ignorance nor mandate inaction.

We often need to explain "statistical" state-

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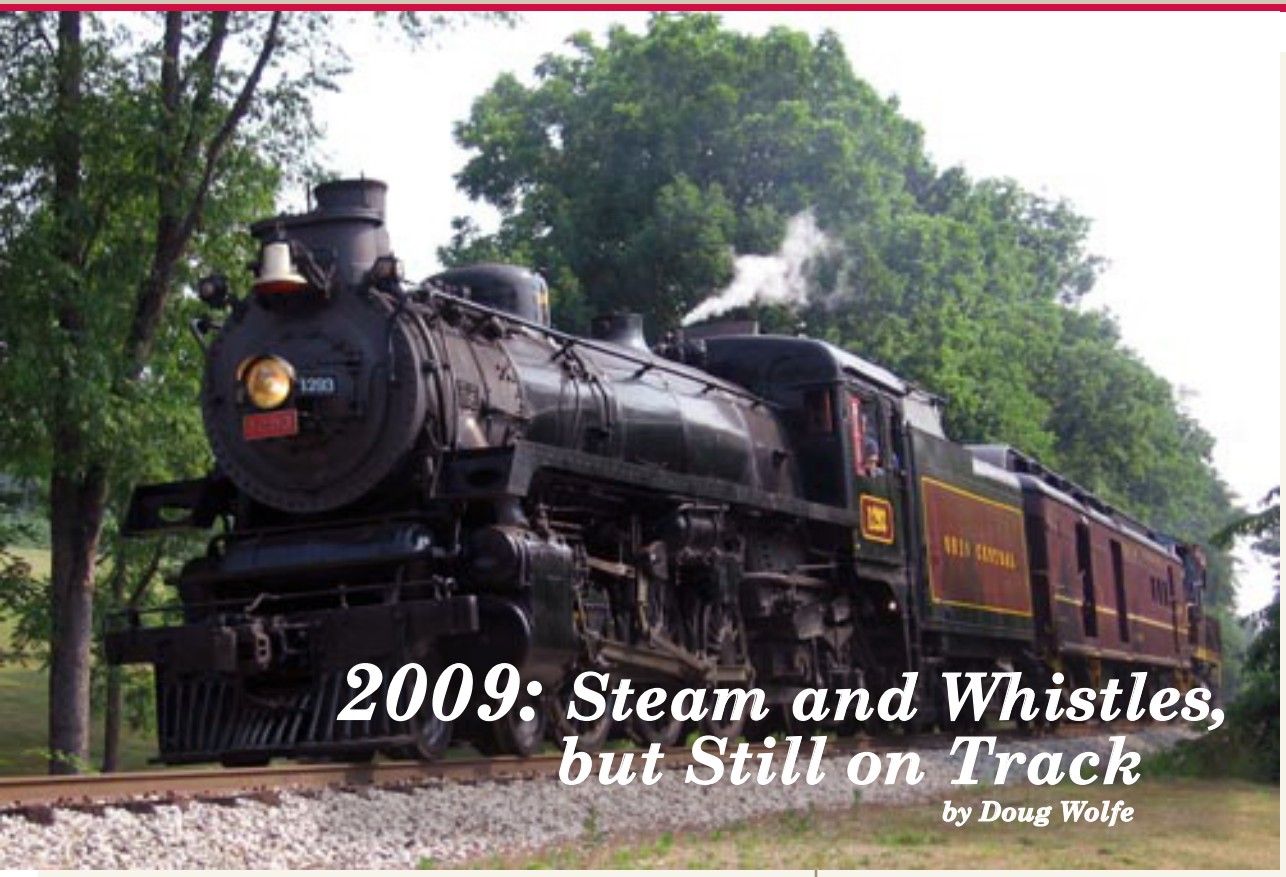

2009: Steam and Whistles, but Still on Track

by Doug Wolfe

Doug Wolfe

In many ways, Ohio is no different from the rest of America — hit extremely hard by the worst economic recession this country has faced in my lifetime. The one major exception is that in Ohio we have an education governor who backed up his popular words of support for education with often unpopular actions of support to spare (at least temporarily) higher education in Ohio from the recession's scythe. While we were not provided with budgetary increases to add more coal (yes, of course, environmentally friendly coal) to bring our engine up to bullet train speed, we were also spared the need to douse the fires that have been propelling us forward. While we cannot predict what will happen in the next biennium if the economy does not improve, we in the Department of Statistics at The Ohio State University clack our wheels and blow our whistle to acknowledge our appreciation to Governor Ted Strickland for his stalwart defense of and support for higher education in Ohio, in general, and Ohio State, in particular. Our deep appreciation goes to Governor Strickland for his steadfast commitment to the future of Ohio.

Our high quality faculty and graduate student research continues to attract significant external funding from a variety of Federal agencies. As has been the case in recent years, we led the entire College of Biological, Mathematical and Physical Sciences (BMAPS) in increased research support once again last year. Congratulations to our faculty!! Please take the time to read about a few of these exciting research projects elsewhere in the Newsletter.

Faculty and Staff Awards and Honors—Kudos

Department faculty members once again received important honors and awards in 2009. Noel Cressie was selected to recieve one of the 2009 IBM Faculty Awards. More importantly Noel was selected to deliver the R. A. Fisher Lecture at the 2009 JSM in Washington, D.C. This is the most prestigious award given by our professional societies and we are very proud of Noel for all of his accomplishments that led to this outstanding honor. But the faculty recognitions did not stop there. Tom Santner and Shili Lin were selected as Fellows of the American Association for the Advancement of Science and Joe Verducci was chosen to be the inaugural Editor of the new American Statistical Association journal *Statistical Analysis and Machine Learning*. Jackie Miller was selected to be the repre-

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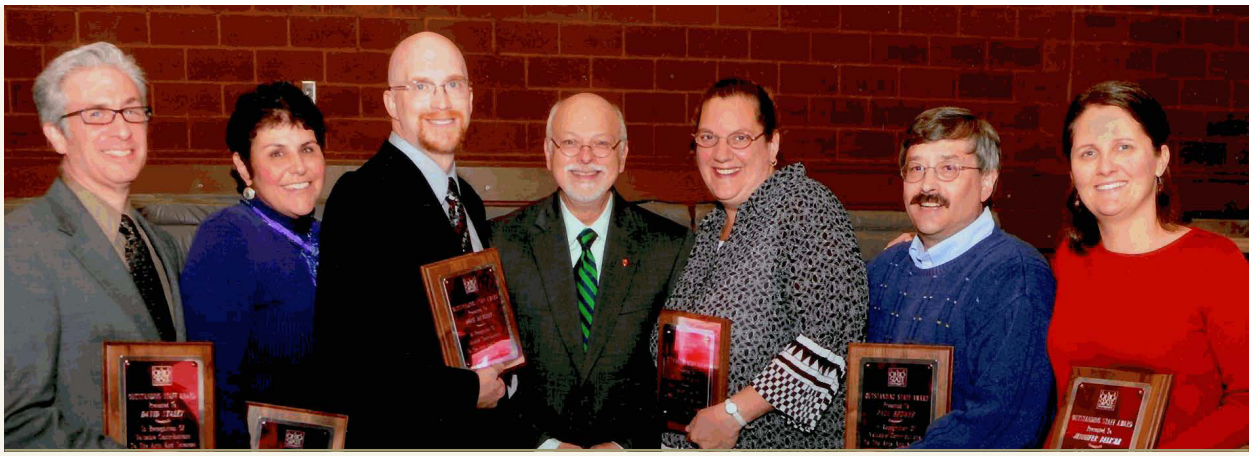
sentative to the ASA Executive Committe at Large for the Section on Statistical Education, and Steve MacEachern was elected Program Chair Elect for the ASA Section on Nonparametrics. Well done, Noel, Tom, Shili, Joe, Jackie, and Steve!



Paul Brower (2nd from the right) receives the College of the Arts and Sciences Distinguished Staff Award

Not to be outdone by the faculty, our staff garnered some prestigious and well-deserved awards this year as well. Congratulations to Paul Brower for his selection to receive a Distinguished Staff Award from the College of the Arts and Sciences and to Kythrie Silva for her selection to receive a Distinguished Staff Award from BMAPS. Well done, Paul and Kythrie!

Miscellaneous, but Important, Tidbits

- Elizabeth Stasny and Lisa Van Dyke outdid even themselves this year with an outstanding group of new graduate students that included thirteen University Fellowship recipients. This high number of Fellowship enrollees far outpaced the other science departments in BMAPS. Well done, Elizabeth and Lisa! (See more about our graduate students elsewhere in the Newsletter.)

- Our Department was among the top statistics departments in the country in terms of graduate students presenting their research at JSM 2009 in Washington, D.C. and other national and international meetings. Once again we need to thank Gary Koch (and Family and Friends) and matching contributions from other alumni for providing the funding to make this outstanding graduate student participation possible. Please consider making additional contributions to the Gary Koch Family & Friends Graduate Student Travel Fund (details elsewhere in the Newsletter) to maintain this important opportunity for our graduate students.

- We are in the painful process of converting our graduate program and curriculum from the quarter system to the semester system, as mandated by the Board of Regents. In the long run, it will likely be a good thing, but it is certainly going to take considerable faculty time to make it happen. My special thanks to Peter Craigmile and Angela Dean for their leadership roles in coordinating this process.

- Space—the last frontier. The fact that space is allocated only a bullet and not its own section this year is a victory in and of itself. The new copper roof on Cockins Hall is now in place and we can move forward with some of the much-needed renovation to our space. The other good news is that our friends in the Mathematics Department continue to share their space with our graduate students so that we can have everyone in close proximity. Thanks to the OSU mathematicians!

Please let us know of exciting things that are happening in your professional and personal lives by dropping me an email message at daw@stat.osu.edu. Our Department is only as good as our alumni and we can only know how good our alumni are if you tell us how you are doing! Also, please keep us in mind if your company or institution is planning to hire another statistician or host a summer intern. I will make sure our graduate students are aware of the opportunity.

Buckeye Moment Without Bad Poetry

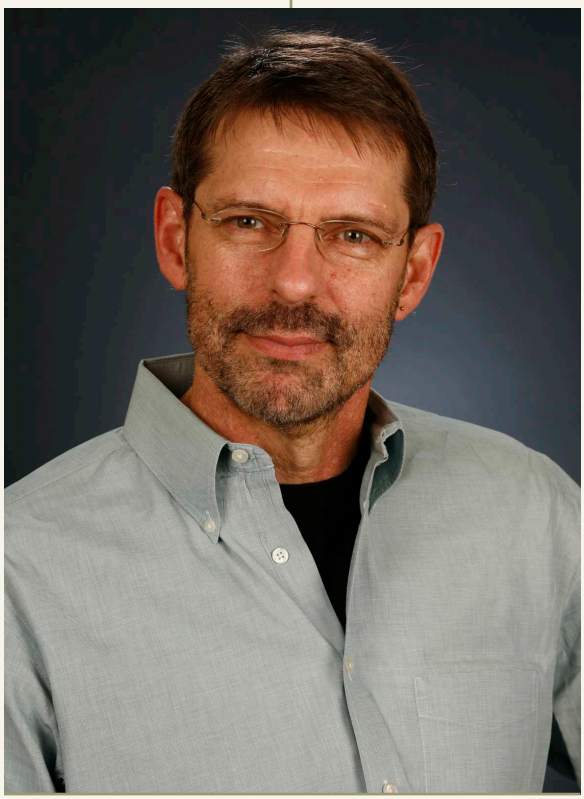
An Outlier who wants to be Hierarchical needs Information to be Optimal.

Noel Cressie Wins Top Statistics Prize

based on article by Pam Frost Gorder

The Committee of Presidents of Statistical Societies (COPSS) awarded Noel Cressie the 2009 R.A. Fisher Lectureship for his "meritorious achievement and scholarship in statistical science and highly significant impact of statistical methods on scientific investigations." Noel presented his Fisher Lecture at the Joint Statistical Meetings in Washington D.C. in August of 2009.

Over the last 20 years, Noel has developed new statistical methods for studying everything from the growth of the ozone hole, to the dynamics of flu epidemics in Scotland, to the flow of Greenland's glaciers. While these phenomena may seem unrelated, Noel has shown that spatial statistics can be used to study all three, as well as many other areas of science, including physics, ecology, epidemiology, agriculture, and neuroscience.



Noel Cressie awarded the 2009 R.A. FIsher Lectureship

Jeremy Taylor, chair of the COPSS award committee, explained why Noel was chosen for this honor. "His work has truly revolutionized spatial statistics, not only in terms of advances in theory and applications, but in the sense that spatial statistics is now considered to be a fundamental part of the statistics curriculum," Taylor said. Spatial statistics has existed in one form or another since the first explorers began to map the world. Their notes on the plants, animals, and even weather they encountered along the way are all early forms of spatial data. But spatial statistics didn't take shape as a formal discipline until after 1991, when Noel published his book *Statistics for Spatial Data*. With that book, he showed that many diverse methods for analyzing spatial data could be combined into a single toolkit for scientific research.

Doug Wolfe, professor and chair of the Department of Statistics at Ohio State, said that Cressie's expertise in this area puts him in constant demand to serve on advisory panels for agencies including the Department of Energy, National Research Council, National Science Foundation, and Environmental Protection Agency. Wolfe called the Fisher Lectureship "a singular and very much-deserved honor that rightfully recognizes Noel as one of the contemporary giants in our field of statistics."

COPSS represents three North American statistical societies -- the American Statistical Association (ASA), the two North American Regions of the International Biometric Society, and the Statistical Society of Canada -- and an international society, the Institute of Mathematical Statistics (IMS). Cressie is a Fellow of both the ASA and the IMS.

The committee awards the Fisher Lectureship in honor of Sir Ronald Aylmer Fisher, whose analyses of agricultural and biological data during the first half of the 20th Century laid the foundation for much of modern statistics. In his work, Cressie uses statistical methods that meld Fisher's techniques with those of Thomas Bayes, an 18th Century mathematician whose work is currently enjoying a renaissance.

While Fisher maintained that controlled scientific experiments were the only legitimate source of statistical knowledge, Bayes looked to other, uncontrolled sources and a scientist's knowledge about a subject from past experience. All sources are more or less uncertain, and it is the quantification of these uncertainties that are the building blocks of a Bayesian analysis.

Cressie's work merges both ideas. He quantifies uncertainty about how data vary in space and time, and combines it with the results from rigorous, controlled scientific experiments when available. This hybrid technique gives scientists "wiggle room" when they want to study complex systems where some data are missing.

Today, technology is enabling scientists to gather more data than Fisher could ever have imagined. For instance, when studying atmospheric particles called aerosols -- a principal driver of global climate -- scientists can obtain massive amounts of data from satellites. But satellite images often contain blank spots where no data were recorded.

With Cressie's methods, scientists can combine current and past data with what they know about how the data vary in space and time to fill in the blank spots. They define a statistical measure of a map's uncertainty and ultimately produce a global map that minimizes this uncertainty measure. The final product is both the map and its uncertainty measure.

With his Fisher Lectureship, Cressie joins the ranks of John Tukey, the father of modern data analysis; C.R. Rao, a giant of theoretical statistics and formerly a visiting professor at Ohio State; and Sir David Cox and Bradley Efron, both leading innovators of statistical methodology and its applications in the sciences.

Statisticians go to Washington *(continued from page 1)*

ments. For example, compare the following two claims:

1. Global warming is likely to lead to increased severity of hurricanes.
2. Global warming caused the severity of Hurricane Katrina.

The key is that "climate" is statistical by nature. It describes typical, not specific, behaviors.

Depending on their experience, statisticians will not be surprised by the difficulties in communicating with policy makers and their advisers. Non-math communication of science and statistics is necessary. We cannot expect policy makers to understand the science and/or the statistics nor expect them to ignore politics.

Finally, we hope that our efforts will spur statisticians to become more engaged in climate change decision support.

United States Conference on Teaching Statistics (USCOTS 2009): Another Big Success!

by Deborah Rumsey

The third biennial USCOTS, hosted by CAUSE (The Consortium for the Advancement of Undergraduate Statistics Education), took place on June 25-27, 2009 at OSU. The theme of the conference was "Letting Go to Grow." Over 350 people attended the conference. Teachers from a wide range of institutions, departments, and countries came to learn and to exchange ideas about teaching statistics at the undergraduate level. The challenge was to think about whether we are trying to fit too much into our current statistics courses, and if so, what can and should we let go of to make our courses more relevant, effective, and up to date. This theme brought about much lively discussion and friendly debate among the conference participants.

Plenary Session

The distinguished plenary speakers included Dani Ben-Zvi, University of Haifa, Israel; George Cobb, Mount Holyoke College; Chris Wild, The University of Auckland, New Zealand; Peter Ewell, Center for Higher Education Management Systems; and Ron Wasserstein, American Statistical Association. USCOTS 2009 included 17 breakout sessions; each one focused on what to let go of to grow.

Some of the many highlights of the conference were George Cobb's talks, which focused on using the Bayesian approach to teach statistics. Two "Posters and Beyond" sessions were also held, featuring peer-reviewed contributions submitted by conference participants.

USCOTS 2009 also included four cluster groups, whose members shared a common interest within statistics education: 1) Study of Fun Cluster; 2) Teaching Statistics in the Online World Cluster; 3) Student Attitudes Cluster; and 4) Research in Statistics Education Cluster.

The USCOTS 2009 Program committee included a number of members of the OSU Statistics Department: Deb Rumsey (Chair); Dennis Pearl (CAUSE Director); Jackie Miller (Posters and Beyond Chair); Jean Scott (CAUSE program coordinator); and Kythrie Silva (Technology Coordinator).

USCOTS was funded in part by contributions from the College of Biological, Mathematical and Physical Sciences and the Department of Statistics at The Ohio State University, the American Statistical Association, and an NSF grant. Photos and other information from USCOTS 2009 are posted on the website: www.causeweb.org/uscots.

Posters and Beyond

Teri Tykodi Berliner
(Alumni M.A.S. 1985)

I can't believe it's been 24 years since I received my Master of Applied Statistics (M.A.S.) degree from The Ohio State University, and, similarly, I can't believe I've been employed by American Electric Power (AEP) for 24 years! It's true that time flies when you're having fun. And I am; life is good.

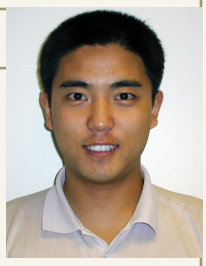
I wanted to take the time to express my gratitude to the Statistics Department for equipping me with the tools that have helped me in my career at AEP (which I hope isn't over yet). The M.A.S. degree was exactly what I was looking for after receiving my B.S. degree. The program included a perfect mix of theory and application of probability and statistics and gave me the opportunity to get some real-life statistical analysis experience by working in the statistics laboratory.

Soon after my OSU graduation, I was hired by AEP, and my first job was actually using statistics! I was in the Load Research Dept., where we designed and analyzed samples of 15-minute electricity usage data to determine how and when customers use electricity. My educational background also afforded me the opportunity to do some teaching (at some fun places) of basic statistics to fellow load researchers across the country.

After almost 10 years in that role, I held a variety of other positions and am currently Director of Billing & Credit Operations. As you might expect from the title, my work doesn't involve a lot of statistical analysis, but I am surprised at how often I bring discussions of variability and probability into my work life. Also, as you might expect, there aren't many statisticians at AEP (we're way outnumbered by electrical engineers), so the few of us who are trained in this area get calls from co-workers across our 11-state organization for statistics help.

I was very fortunate to receive financial assistance in undergraduate and graduate school, thanks to the generosity of graduates before me. It's now my turn to "pay it forward" by giving back to the department that trained me. I know the dollars I give will enable current and future students to further their education, and I also know that my contributions will continue to allow OSU to draw the best and brightest statistics professors.

Gang Han



In August 2009, a paper that I wrote with Dr. Thomas Santner and Dr. William Notz was published. While looking at the journal website, I was filled with the joy of accomplishment. Although I was in Florida, I seemed to see smiling faces of the faculty and my classmates in the department; I seemed to hear laughter and cheers. Many warm-hearted scenes appeared in my mind.

I started my research from taking an independent reading course with Dr. Notz. The power and beauty of applying statistics to computer experiments surprised me. It was the detailed explanations and encouragements from Dr. Notz that turned confusions to clear interpretations. The next quarter I joined the computer experiments journal club, where I came up with the research topics of my thesis. The journal club was to me the best way to learn recent research in the area and to practice presenting a paper. It has all the elements of a conference talk except the unknown audience that could make a first or second year student feel nervous. Drs. Santner, Notz, and Dean made everyone learn much and have fun. With this training, I was able to speak well at JSM 2005, 2006, 2007, and 2008. I will never forget the research meetings with Dr. Santner. Many times he pointed out, with kind encouragements, what I needed to improve. After I started my career I realized everything he emphasized was extremely important for both research and work. Without his guidance, I would not have been able to make the transition from a student who passed qualifying exams to a researcher who can work on real problems. I won't forget the internship at SAMSI with Dr. Santner and Dianne Bautista, a fellow OSU student, where I learned the research topics of other scholars and made several friends whom I have contact with still today.

After I started my career, I have been missing my positions in the department. These are my first-time experiences. My first consulting work was done at the department's consulting center. In that quarter I met Dr. Thomas Bishop and Dr. William Notz on a weekly (sometimes daily) basis. With their guidance I never worried about making mistakes or not knowing what to do. I worked as a webmaster for the first time in Cockins Hall 340. Brian and Eric were excellent leaders and teachers. Chatting with them always made me burst out laughing! My first RA work was with Dr. Santner on interdisciplinary research, which was a terrific experience in the sense that the collaboration I am doing in my current career feels so much like it. I have been hearing the argument that Ph.D. students may not have enough working experience: I do not agree. An RA position and research can make an experienced statistician.

Besides research and work, so many moments were memorable. From our classes I learned not only statistical knowledge but also intuition. The two qualifying exams and various projects felt tough then but super sweet when looking back. For instance, two of the sweetest emails in my stat.osu account, which helped me sleep well before Q1 and Q2 and can make me smile today, came from Dr. Stasny. The activities outside of the classroom were fantastic. I never dreamed of organizing a T-shirt competition and a Halloween party for the department before coming to OSU, but I did it with Peter during the Sprangers-Han golden age (2005-2006 academic year). The intramural sports convinced me that students in statistics were both smart and strong. At spring parties of the department and the ones in Dr. Santner's house, I enjoyed authentic American food and learned much about American culture. I would like to give special thanks to Gail Santner for the delicious dishes and pleasant conversation.

I remember that before coming to Ohio State from my hometown, Beijing, China, I made the decision to study abroad to fulfill the dreams of learning from the most prestigious scholars and making friends from different continents. The statistics department was where the dreams came true. Cockins Hall will be in my dreams no matter where I go. After I received the Ph.D. degree, I have been feeling that our faculty, staff members, and my classmates are still helping me succeed in work and life. I hope we will meet again soon. I would like to bow to all who taught and supported me and say loudly from my heart "Thank you!"

Joe Hutchings

In August of 2006 I started the drive from Portland, Oregon, where I had been living and working as an accountant for a large homebuilder, to Columbus, Ohio to begin work on a master's in applied statistics here at Ohio State. My brother-in-law and I drove our two cars across the country, making some stops along the way. My wife and our two sons at the time flew to Columbus after I arrived here.

Three years earlier I graduated from Brigham Young University with a bachelor's degree in accounting and moved to Oregon for an accounting job. One year later I got married to my wife, Krystal. About a year later we had our first son, Izaak, and about one year after that (and just two months before we moved to Ohio) we had our second son, Caleb. While in Oregon I realized that earning a degree in statistics was the right thing for me, so I prepared by taking a three-course sequence in calculus and a course in linear algebra. It turned out that Ohio State was the best program in the country that would admit me with funding (most other major universities required a lot more math).

I came here for the applied statistics training, and I loved the applied courses. It was just what I wanted to learn. I also enjoyed my position as a teaching assistant, which I viewed as an important part of my overall education here. However, after the first quarter in the program I felt like I needed to earn a second master's degree; the question was which one? I researched several other programs, but it wasn't until Christmas break when I went to Utah to visit family and friends that a friend and mentor of mine told me that I needed to earn an MBA as my second master's degree. I had already looked into that and wasn't too surprised at what he told me.

Things unexpectedly worked out perfectly for me to spend my second year at Ohio State in the MBA core. Some of you may be interested to know about this dual degree. First of all, I was well-prepared for the GMAT after I had already taken the GRE and a year's worth of graduate-level statistics courses. My technical background in statistics made me that much stronger of a candidate. Had I applied in the first round of MBA applications in January, rather than in May, I would have likely received a university fellowship. As it was, I applied too late for the best funding, but I was admitted with a small scholarship and since I had lived in Ohio for a year, I qualified for in-state tuition.

Most of the first year in the MBA program was required core classes. I didn't take any courses from the statistics department during that year. The courses in the business school do tend to be somewhat quantitative, but they are geared more towards problem solving in general. However, I found the application of quantitative methods taught in the MBA to be useful. I also enjoyed learning about industry, organizational structure and management. My wife and I also had our third son, named Zane, in March of 2008.

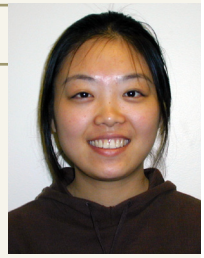
In the summer of 2008 (after being in graduate school for two years) I took an internship in Overland Park, Kansas, which is just outside of Kansas City, Missouri. I worked for Embarq, which is a telecommunications company that had spun-off from Sprint a couple of years before. I was in the finance department and worked on a couple of projects. The two most interesting projects that I worked on were forecasting bad debt expense and doing a survey to determine the most useful things to include on their careers website.

During my third year of graduate school I took a mix of classes from the statistics, business, economics, and psychology departments. From the statistics department I got to take time series, machine learning, and spatial statistics. I also took a class called Bayesian Statistics in Marketing from Professor Allenby, which is a PhD business class. He would be happy to have any interested statistics student take that class.

In January 2009 I started working part-time at Nationwide's Center for Advanced Customer Insights, which is affiliated with the Ohio State statistics and business departments. I worked on a project where I measured the effect of advertising dollars spent on brand awareness.

Soon after I graduated in June, I took a full-time position in Nationwide's Customer Insights and Analytics department where I work on marketing campaign analytics, which means measuring the effectiveness of different advertising campaigns in terms of people calling in for quotes and actual sales. My education in business gave me the background to understand what and why Nationwide does what it does and my education in statistics gave me the skills to do the real work.

Yi Liu



My given name is "Yi", which means "art" in Chinese. My mother gave me this name in the hope that I would become an artist someday, but I turned out to be a statistician. However, in my opinion (and many others I believe), statistics is also an art.

My interest in statistics was seeded in my second year as an undergraduate student at the University of Science and Technology in China, where I was heading toward becoming a mathematician. However, I realized that the pursuit of conceptualizing and perfecting everything was not my dream; my dream is to solve problems that have an immedi-

Yi Liu *(continued from page 7)*

ate impact on the real world. With a clear sight of my future, I transferred to the Statistics Department.

After I graduated, I decided to continue to study in universities in the United States as a Ph.D. student. This is because to make an impact on the society a fundamental understanding of graduate level statistical theory and methods is needed, and obviously universities in the United States offer the best graduate-level education.

I was first accepted by the University of Iowa. One year later I transferred to the Ohio State University. Here, I had the opportunity to take so many different courses that both solidified my mathematical background and exposed me to different areas of statistics. I met many knowledgeable professors, and a lot of friendly, but also competitive graduate students --- such an atmosphere made my life as a graduate student both busy and happy.

Supported by the Department, I have worked as a research assistant (RA), a teaching assistant (TA), and a grader. Each kind of work is very helpful to my career. As a research assistant, I worked three years with two professors in the Center for Human Resource Research (introduced by Dr. Stasny). We worked on projects aimed to identify factors that influence the weight status for children. I am very thankful for this experience; my skills in analyzing survey data and programming in SAS were developed and improved during this time. As a grader, I graded several core courses, which made me more familiar with the material that I have learned. As a teaching assistant, explaining statistical terminology in a way that students with little statistical background can enjoy was difficult, but made me gradually develop my own way of communicating with students. The joy of helping them master the material is indescribable.

My thesis research, directed by Dr. Hsu, is in the area of multiple comparisons with application to clinical trials and biopharmaceutics. When taking the multiple comparisons class (Stat 745) taught by Dr. Hsu, I was really fascinated by the fundamental method called the "Partition Principle" that deals with ALL kinds of multiple testing problems. Because the method is so powerful, I steered my research in this direction. So far, I have spent three years working in this area, including experiences in giving presentations and writing papers. None of this work could have been done without the constant support and encouragement I recieved from Dr. Hsu.

Now I clearly see how I can make an impact on society: by making contributions to the statistical methods used in developing drugs that are both efficacious and safe, I can improve the overall quality of people's lives. This is my dream and I believe I can fulfill it in the near future.

Sincere Thanks to Our Donors

We wish to recognize those alumni, friends, students, staff, and faculty members who have helped the Department financially over the past year. Your donations, no matter the amount, make it possible to continue to attract, train, and reward our excellent graduate students. Many thanks to the following donors:

CAUSE Support Fund
Barbara Cohen

Cockins Hall Renovation and Improvement Fund
Douglas Griffith

Craig Cooley Award Fund
Daniel Cotton IV
Mary Ellen Smircich Frustaci
Marcie Naber

Gary Koch Student Travel Award Fund
Gary and Carolyn Koch
Erin Leatherman
Yi Liu
Hyejung Moon

Graduate Fellowship Fund
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Brian Jonathan Williams

Thomas E. and Jean D. Powers Award Fund
Robert Abel

Rustagi Memorial Lectureship Fund
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Patrick Anderson
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Statistics Support Fund
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Walter Hoy
Charles Oprian
Maria-Belen Ines Pangilinan
Neal Alan Wallingford

Not listed above are the members of the faculty and staff who donated to the Department this year, as that would almost require giving a complete roster of the Department. Those gifts are evidence of the commitment of the faculty and staff to the Department and are also greatly appreciated.

POWERS TEACHING AWARDS

The Thomas and Jean Powers Teaching Awards are presented each year in two categories: the best TAs teaching either recitations or lectures, and an outstanding professor in the department. These awards were instituted in 1986 through a generous gift to the Statistics Development Fund by Professor Emeritus Jean Powers and her husband Tom Powers.

Bethann Pflugeisen receiving the Powers Teaching Award.

The department is lucky to have a large number of excellent Graduate Teaching Associates. The selection of the best TAs is never an easy task, and there are always a number of extremely good teachers who are runners-up for the award. In 2008-09, the awards for best TA were presented to Tayler Blake, Tyson Crowther, and Bethann Pflugeisen. The faculty award was presented to Professor Radu Herbei.

WHITNEY AWARDS

In 1992, Professor Emeritus Ransom Whitney and his wife Marian Whitney made a generous gift to the Statistics Department Fund to institute several awards for graduate students. They added to this gift in 2008, allowing us to increase the number of awards as our graduate student enrollment increases. In 2008-09, there were an especially large number of deserving students and determining the best was difficult. Thus, we had multiple winners in each category. The winners of the best consultant award in the Statistical Consulting Service were Yoonsuh Jung and Lili Zhuang. The awards for the best research associate were given to Candace Barrett, Danel Draguljic, and Prasenjit Kapat. The awards for best research leading to the Ph.D. were awarded to Juhee Lee and Yi Liu. We congratulate these students and thank them for their hard work.

CRAIG COOLEY MEMORIAL PRIZE

Each year the Craig Cooley Memorial Prize is presented to a graduate student in the Department demonstrating exceptional scholarly excellence and leadership abilities. Craig embodied these two qualities throughout his graduate career. Tragically, he was killed in 1996 just before receiving his Ph.D. To honor his memory the department created the Craig Cooley Memorial Prize. The Craig Cooley Memorial Prize for 2008-09 was awarded to Gang Han. (See Gang's student profile elsewhere in this newsletter.)

UNIVERSITY FELLOWSHIPS

For 2008-09, single-year University Fellowships were awarded to Erin Leatherman from Bluffton College, Zhiyu Liang from Shanghai University of Finance & Economics, Taylor Pressler from Mount Holyoke College, Anthony Sgambellone from Case Western Reserve University, Christina Springer from Capital University, and Katherine Thompson from the University of Kentucky. A two-year Distinguished Fellowship was awarded to Johanna Tam from California State Polytechnic University-Pomona.

INDUSTRIAL AND DEPARTMENTAL FELLOWSHIPS

Each year the Department of Statistics is able to offer special recruitment fellowships to some of the very best new applicants to our graduate programs. These fellowships are funded through the generous support of sponsoring industrial organizations, for which the department is always grateful. The sponsoring organizations, their Fellowship stipend amounts and the 2008-09 student recipients are as follows:

Battelle Fellowships

Two awards in the amount of $5,000 each were provided by Battelle. The 2008-09 recipients were Anthony Sgambellone from Case Western Reserve University and Katherine Thompson from the University of Kentucky.

Capital One Fellowship

An award in the amount of $5,000 was provided by Capital One. The 2008-09 recipient was Pete Mazzeo from the University of Akron.

JP Morgan Chase Fellowships

Three awards were provided by JP Morgan Chase. The 2008-09 recipients of $5,000 awards were Jonathan Bradley from Rochester Institute of Technology and Erin Leatherman from Bluffton College. Johanna Tam from California State Polytechnic University-Pomona was the recipient of a $3,000 award.

Lubrizol Foundation Fellowships

Six awards in the amount of $3,000 each were provided by the Lubrizol Foundation. The 2008-09 recipients were Alissa Douglas from Capital University, Durrel Fox from Millersville University, Taylor Pressler from Mount Holyoke College, John Snyder from Grinnell College, Christina Springer from Capital University, and Felicia Wennersten from the University of Cincinnati.

We appreciate the support from Battelle, Capital One, JP Morgan Chase, and Lubrizol.

2009 Whitney Award winners Juhee Lee (left) and Yi Liu (right) with Mrs. Marian Whitney

Elizabeth A. Stasny

This Year's Ph.D. Graduates

We are proud to have another excellent group of Statistics and Biostatistics Ph.D. graduates this year. Below are the titles of these graduates' dissertations and the positions they have accepted:

Ph.D. in Biostatistics:

Jie Ding – "Monte Carlo pedigree disequilibrium test with missing data and population structure", Postdoctoral Fellow, Division of Oncology Biostatistics, Johns Hopkins University

Dongmei Li – "Resampling-based multiple testing with applications to microarray data analysis", Assistant Professor, Public Health Sciences, Biostatistics, University of Hawaii at Manoa

Kimberly Walters – "The use of post-intervention data from waitlist controls to improve estimation of treatment of effect in longitudinal randomized controlled trials", Postdoctoral Scientist, Battelle Center for Mathematical Medicine, Research Institute at Nationwide Children's Hospital

Ph.D. in Statistics:

Dianne Carrol Bautista – "A sequential design for approximating the Pareto front using the expected Pareto improvement function", Biostatistician, Singapore Clinical Research Institute and Assistant Professor, Duke - National University of Singapore Graduate Medical School

Gang Han – "Modeling the output from computer experiments having quantitative and qualitative input variables and its applications", Biostatistician, Biostatistics Core, H. Lee Moffitt Cancer Center & Research Institute

Jessica Kohlschmidt – "Ranked set sampling: A look at allocation issues and missing data complications", Research Specialist, Comprehensive Cancer Center, The Ohio State University Medical Center

Arun Kumar – "Sequential calibration of computer models", Postdoctoral Fellow, Department of Biostatistics and Computational Biology, University of Rochester

Shannon Markiewicz – "Nonparametric inference using order restricted randomized designs", Assistant Professor, Department of Mathematics, Ohio Dominican University

Rajib Paul – "Theoretical and algorithmic developments in Markov chain and Monte Carlo", Assistant Professor, Department of Statistics, Western Michigan University

Soma Roy – "Sequential-adaptive design of computer experiments for the estimation of percentiles", Assistant Professor, Statistics Department, California Polytechnic State University

Christopher Sroka – "Extending ranked set sampling to survey methodology", Research Scientist, Battelle Memorial Institute

Zheng Wang – "Semi-parametric Bayesian models extending weighted least squares", Statistician, R&D Statistical Sciences, Lubrizol Corporation

Yonggang Yao – "Statistical applications of linear programming for feature selection via regularization methods", Research Statistician/Software Developer, SAS Institute

Xiuyun Zhang – "Efficient algorithms for fitting Bayesian mixture models", Statistician, Intel Corporation

Internships

Once again our graduate students found a variety of exciting summer (and other quarter) internships this year.

John Draper spent his summer working as a statistical intern for Battelle.

Yuanjing Jin spend the summer enjoying sunny Los Angeles and working in the Global Biostatistics and Epidemiology group within the Research and Development division of Amgen. She worked on "Analysis of Radiographic Data from Rhematoid Arthritis Clinical Trials".

Pete Mazzeo worked for Capital One in Richmond, Virginia in the Consumer Banking Division. Pete's primary focus was building survival models to develop intuition around and predict customer account attrition.

Bethann Plugeisen spent the summer working as an intern to Dr. Pei Wang at the Fred Hutchinson Cancer Research Center in Seattle, WA.

Jared Schuetter interned at Battelle Memorial Institute. He was part of a team designing a portable device that can rapidly detect biological contaminants and is intended for use in national defense and pharmaceutical applications.

Aritra Sengupta enjoyed his summer in the cold and windy Hobart (Tasmania, Australia) working on a project with the Division of Mathematical and Information Sciences at CSIRO (the marine labs in Hobart). He worked on "Handling location error in a simple Kalman Filter, with applications in ocean data assimilation schemes".

Lili Zhuang was a summer intern in the technology development department within the US Commercial organization of Monsanto.

Student Presentations

The Department was represented at the Joint Statistical Meetings in Washington, D. C. this summer by 21 of our graduate students. Thanks to all the presenters for helping

Food and fellowship at the Department's Winter Holiday Party.

Let's Play Ball!

us show what impressive students we have. The students and their topics are listed below:

Candace Berrett, joint with C. Calder: "Data Augmentation Methods for Bayesian Modeling of Spatially Dependent Categorical Data"

Jenny Brynjarsdottir†, joint with M. Berliner: "Bayesian Hierarchical Modeling for Paleoclimate Reconstruction from Geothermal Data"

William Darnieder†, joint with C. Calder, M. Kwan, T. Hawthorne, and A. Jackson: "Nonparametric Estimation of Individual Activity Spaces"

Danel Draguljic†, joint with D. Woods (University of Southampton), A. Dean, S. Lewis (University of Southampton): "Comparison of Screening Methods in the Presence of Interactions"

Nader Gemayel†, joint with D. Wolfe and E. Stasny: "Nonparametric Estimation in Ranked Set Sampling with a Concomitant"

Lori Hoffman†: "Disease Mapping via the Coalscent"

Jonathan Joseph†, joint with H. Nagaraja: "Stochastic Modeling of Stream Flow Measurements in the Mississippi and Missouri Rivers"

Yoonsuh Jung†, joint with Y. Lee and S. MacEachern: "Efficient Quantile Regression"

Lei (Emily) Kang, joint with N. Cressie and S. Sain (NCAR): "Hierarchical Spatial Random Effects Model for High-Resolution Data from Regional Climate Models"

Prasenjit Kapat†, joint with P. Goel: "On Ridge Regression, Convexity, and Nonlinear Problems"

Matthias Katzfuss†, joint with N. Cressie: "Maximum Likelihood Estimation of Variance Parameters in the Spatial Random Effects Model"

Juhee Lee†, joint with S. MacEachern: "Robust Nonparametric Bayesian Methods"

Yushi Liu, joint with J. Verducci: "Time Course Analysis of Microarray Data for the Pathway of Reproductive Development in Female Rainbow Trout"

Sharada Modur, joint with E. Stasny and C. Hans: "Three-Level Mixed Model with Heterogeneous Within-Subject Variances"

Hyejung Moon†, joint with T. Santner and A. Dean: "Two-Stage Sensitivity-Based Group Screening in Computer Experiments"

Taylor Pressler: "Building Bridges: Making Statistical Issues Accessible to the Biomedical and Translational Researcher"

Youlan Rao, joint with Y. Lee and J. Hsu: "Determination of Sample Size for Validation Study in Pharmacogenomics"

Mallikarjuna Rettiganti†: "Sample Size and Power Analysis for PG and PGB Trials Using Parametric Tests"

Jared Schuetter†, joint with T. Shi: "Clustering via Data Spectroscopy"

Li Yu, joint with J. Verducci: "The Tau-Path Test: A Generalization of Kendall's Tau Statistic to Test Subpopulation Association"

Lili Zhuang†, joint with N. Cressie: "Posterior Distributions on Networks"

† Recieved the Gary Koch Student Travel Award

In addition to the students presenting at the 2009 JSM, the following students received support from the Gary Koch Student Travel Award fund.

Candace Berrett's paper "Spatial characteristcs of the difference between MISR and MODIS aerosol optical depth retrievals over mainland southeast Asia" was presented at the Workshop on Environmetrics and Short Course at NCAR in October, 2008.

Nader Gemayel presented his paper "Bayesian nonparametric view of judgment ranking of population units" at the conference Nonparametric Statistics: Refined, Redefined and Renewed in Arlington, Texas, April 2009.

Bethann Pflugeisen gave her presentation "Rate of return: a Bayesian mixed model for Lake Erie Walleye" at the 4th International Symposium on Fish Otolith Research and Applications in Monterrey, California in August, 2009.

Welcoming new graduate students

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NEWS

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CONGRATULATIONS TO OUR GRADUATES!

The following students earned degrees in 2008-09.

Master of Applied Statistics

SUMMER 2008
- Jianming Huang
- Jia Ji
- Juan Li
- Dongning Lu
- Shijin Wu
- Qianqian Zhang
- Xi Zhang
- Fanyu Zhou

AUTUMN 2008
- Guoxiang Ding
- Jing Han
- Wing San Hui
- Eric Robert Minton
- Xiaokui Mo
- Jiye Wang
- Peijun Wu
- Yang Yu

WINTER 2009
- Wei Guo
- Jeong Sook Im
- Yuxiong Ji
- Guangfei Jiang
- Yuanjing Jin
- Dionesia Kalos
- Lexian Lu
- Manish Talreja
- Jing Wang
- Ying Wang
- Miao Xiao
- Chao Xie

SPRING 2009
- D. Joseph Hutchings
- Yuhan Jia
- Jia Li Lau
- Kelly Lynn Schlessman

Master of Science

AUTUMN 2008
- Jenny Brynjarsdottir
- Matthias Stefan Katzfuß
- Feiyou Qiu

WINTER 2009
- Olajide Israel Ajayi
- Jungick Lee
- Chin-Yuan Liang
- Nuo Xi

SPRING 2009
- Elizabeth Brondos Fry
- Hyeong-Tak Lee

Doctorate

SUMMER 2008
- Jie Ding†
- Arun Kumar
- Rajib Paul
- Soma Roy
- Christopher James Sroka
- Kimberly Ann Walters†

AUTUMN 2008
- Gang Han
- Shannon Colleen Markiewicz
- Yonggang Yao

WINTER 2009
- Jessica Kay Kohlschmidt
- Zhen Wang

SPRING 2009
- Dianne Carrol Bautista
- Dongmei Li†
- Xiuyun Zhang

† Biostatistics PhD

Supporting Current and Future Students

As you can tell from the reports in this newsletter, we have an excellent group of graduate students in the Department. To continue to attract and support these students is, of course, expensive. For example, we pay for outstanding potential students to come visit the Department. We recognize excellence in teaching, research, consulting, and service by graduate students through annual awards. We support students traveling to present their work at national conferences. We ask you to consider helping support our current and future students through a contribution to one of the Departmental funds for graduate students:

Craig Cooley Fund #06940-601434
Gary Koch Student Travel Fund #06940-480697
Graduate Fellow Fund #06940-310567
Powers Award Fund #06940-605898
Statistics Support Fund #06940-307669
Whitney Scholarship Fund #06940-607689

www.stat.osu.edu/dept/giving

This is an excellent way for alumni to give something back to the Department. Your gift, in any amount, is important and appreciated.