The National Research Center for Statistics and the Environment

The University of Washington
October 4, 2001

NRCSE EPA Funding Not Renewed

On Sept 10, NRCSE was notified that our cooperative agreement with the EPA was not renewed. A new center, entitled Center for the Integration of Statistics and Environmental Sciences, will be located at the University of Chicago. The director will be Michael Stein.

NSF Site Visit for National Environmetric Institute

A site visit team from the National Science Foundation will be visiting the University of Washington October 18 and 19 to determine if we will be awarded funds for a National Environmetric Institute. The schedule for the visit will be made available on the NRCSE web site.

RECOGNITION AND AWARDS

Peter Guttorp

Peter Guttorp was named a Fellow of the American Statistical Association in Atlanta, GA in August 2001. The award citation reads: "For major contributions to the growth of environmetrics; for research on spatial modeling under nonstationary spatial covariance; for administration of interdiciplinary research groups, especially as Director of the National Research Center for Statistics and the Environment; for service to the profession."

Dennis Lettenmaier

Dennis Lettenmaier was awarded the Hydrology Section Award at the Fall Meeting Hydrology Section Reception which was held last December in San Francisco, CA. This award recognized his outstanding contributions to the science of hydrology. Dennis has been a key player in the integration of hydrological science with the atmospheric science community on the one hand, and the water resources engineering community on the other.

Loveday Conquest and Pip Courbois

Loveday Conquest and Pip Courbois are co-investigators on the newly funded EPA Center for Sampling and Ecology, out of OSU in Corvallis, OR. Don Stevens is the lead investigator. Colorado State was awarded a similar Center and plans to cooperate closely with the Corvallis Center and NRCSE.

Samantha Bates

Samantha Bates was awarded the best student paper award, and the prize for best risk analysis paper at the TIES 2001 Conference in Portland, OR in August. Her new e-mail is sbates@vt.edu.

Dean Billheimer

Dean Billheimer has a new position at Vanderbilt University in Nashville, Tennessee. His new job title is Assistant Professor of Preventive Medicine in the School of Medicine. His new e-mail is dean.billheimer@mcmail.vanderbilt.edu.

PRESENTATIONS

Julian Besag presented the opening plenary lecture at the Royal Statistical Society annual conference, Glasgow University, UK.

Tilmann Gneiting presented "Nonseparable covariance models for space-time data" at the Technical University of Vienna (Austria), May 31, 2001 and at the GSF Research Center for Environment and Health, Institute of Biomathematics and Biometry, Munich (Germany), June 13, 2001. He also attended a workshop on "Probabilites sur les structures geometriques" at the French Mathematical Research Institute at Luminy (July 16-20), with an invited talk on "Nonseparable, stationary covariance functions and space-time geometry."

Peter Guttorp gave six lectures on "Statistical Inference for Stochastic Processes in Environmental Science" at the 5th Brazilian School of Probability in Ubatuba, S.P., Brazil, July 30 - August 4, 2001.

TIES

The International Environmetrics Society met in Portland, OR on August 13 - 17, 2001. Several Center members gave presentations: Samantha Bates, "Bayesian Uncertainty Assessment in Multicompartment Deterministic Simulation Models for Environmental Risk Assessment;" Loveday Conquest, "Ranked Set Sampling and Other Double Sampling Procedures: Incorporating Judgement into Ecological Sampling;" Peter Guttorp, "Meteorological Adjustment of Air Pollution Data" and "Bayesian Estimation of Non-stationary Spatial Processes Using the Sampson-Guttorp Deformation Approach;" and Ashley Steel, "Applications of Ratios in Monitoring Salmonid Populations: The Problem with Random Denominators."

JSM

The JSM 2001 meeting was in Atlanta, Georgia on August 5-9, 2001. The Center presenters were: Julian Besag, "Bayesian Analysis of Agricultural Field Experiments;" Mark Handcock, "A Two-part Model for Semicontinuous Spatial Data;" Thomas Lumley, "Window Subsampling for Spatially Correlated Censored Data;" Paul Sampson, "Air Quality Monitoring Network Design Using Pareto Optimality Methods for Multiple Objective Criteria;" and Eun Sug Park, "Multivariate Receptor Modeling for Temporally Correlated Data by Using MCMC."

WORKSHOPS/SEMINARS

Spatial Moving Average Workshop

A workshop on spatial moving averages was organized by Jay Ver Hoef and Dave Higdon and held at the NRCSE from May 20 - 22 2000. Spatial moving average models have surfaced repeatedly in recent years in disparate literatures. They are formed by using a moving average function (or kernel) that operates on an independent spatial process. The goal of the workshop was to bring together authors to share ideas. Talks, followed by discussion, were given by Ron Barry, Nicky Best, Montserrat Fuentes, Dave Higdon, Katja Ickstadt, Doug Nychka, Jean Thiebaux, Jay Ver Hoef, Chris Wikle, Robert Wolpert on topics relating to basic theory, relationships to other spatial methods, estimation methods (classical and Bayesian, large data sets), univariate and multivariate models, and stationary and nonstationary models.

NSF-CBMS Regional Conference in Math Sciences

The NSF-CBMS regional conference on Environmental Statistics, featuring Richard Smith from North Carolina, took place June 25-29, 2001, at the University of Washington. There were 59 participants. The format had a lecture by Dr. Smith in the morning, followed by a guest speaker (Paul Switzer, Stanford University, Jim Zidek, University of British Columbia, Doug Nychka, NCAR Geophysical Statistics Project, and from UW Tilmann Gneiting, Paul Sampson and Peter Guttorp). In the afternoon Dr. Smith gave his second lecture of the day, followed by a breakout session in which various topics were discussed in a roundtable format. The conference was extremely well received by the audience. Indeed, some of the participants rated this as the best conference they had ever participated in.

Dr. Smith's slides are available on the web at www.stat.unc.edu/postcript/rs/envstat/env.html.

PAPERS SUBMITTED/PUBLISHED BY CENTER MEMBERS

D. Damian, P. Sampson, P. Guttorp, "Bayesian estimation of semi-parametric non-stationary spatial covariance structures" in *Environmetrics* (2001) **12**:161-178.

G. van Belle, W.C. Griffith and S.D. Edland, "Contributions to composite sampling" in *Environmental and Ecological Statistics*, 8:171-180, 2001.

T. Gneiting, "Nonseparable, stational covariance functions for space-time data", to appear in the *Journal of the American Statistical Association*, 2001.

T. Gneiting, "Compactly supported correlation functions", to appear in the *Journal of Multivariate Analysis*, 2001.

T. Gneiting, Z. Sasvari and M. Schlather, "Analogies and correspondences between variograms and covariance functions", to appear in *Advances in Applied Probability.*

T. Gneiting, M. Schlather, "Stochastic models which separate fractal dimension and Hurst effect", submitted to *SIAM Review.*

S. Bartell, W.C. Griffith, and E.M. Faustman, "Temporal fallacy in biomarker based average exposure inference", submitted to the *Journal of Exposure Analysis and Environmental Epidemiology.*

M. Martin Widmann, C. S. Bretherton, and E. P. Salathé Jr., "Statistical precipitation downscaling over the Northwestern United States using numerically simulated precipitation as a predictor", submitted to *J. Climate*, 9/01.

D. Levy, L. Sheppard, H. Checkoway, J. Kaufman, T. Lumley, J. Koenig, D. Siscovick, "A case-crossover analysis of particulate matter air pollution and out-of-hospital primary cardiac arrest", *Epidemiology*, 12:193-199, 2001.

D. B. Percival, J. E. Overland and H. O. Mofjeld (2001), "Interpretation of North Pacific Variability as a Short and Long Memory Process," *Journal of Climate*, in press.

FROM THE DIRECTOR

In reflecting on the five years of EPA-sponsored research at NRCSE, there are a variety of things to be proud of. The Center has produced a large quantity of research published in peer-reviewed journals. Several monographs have been produced with NRCSE support. Our sequence of workshops has highlighted important research areas in environmetrics, and brought together leading researchers from a variety of fields and geographic regions. Our outreach program has improved the level of scientific education in Seattle middle schools and elsewhere by producing the curriculum product "The Truth About Science." We have had a variety of visitors, both short-and long-term, who have interacted fruitfully with Center members and graduate students. Several Masters and Ph.D. theses of high quality have been submitted by Center research assistants. We have built contacts with EPA researchers and laboratories, and our work has, I believe, increased substantially both the activity in and the visibility of the field of environmetrics. Incidentally, many of these achievements were criticized as lacking in the EPA scientific panel review of our renewal proposal. I do, of course, not agree with the panel's assessment. Rather, I am looking forward to an increased level of activity if we manage to land the National Envirometric Institute with funding from NSF. This will raise our Center to a new level of prominence, and create a global focus for environmetric research.

VISITORS

Daniela Gollineli, a former graduate student in Statistics and now at the University of Southern California, visited the Center in July for about a month. She was working with Peter Guttorp and Pip Courbois on hidden Markov modeling and visualization.

Francesca Bruno, a student from the University of Bologna in Italy, will be visiting January 1 through June. She will be located in Padelford B213.

NEW PEOPLE AT THE CENTER

Rebecca Buchanan

QERM student Rebecca Buchanan is a new member of the NRCSE group. She is working on ranked set sampling research with NRCSE member Loveday Conquest.