



*“Piecing Together the Past: Statistical Insights into Paleoclimatic Reconstructions”*

Tingley, Martin P., Peter F. Craigmile, Murali Haran, Bo Li, Elizabeth Mannshardt-Shamseldin and Bala Rajaratnam. Submitted. Sept 2010

*“Forecast Verification for Tornadoes with High-Resolution Models”* Joint Xiaoye Li, Vasilije Perovic, Ye Tian, Kazuki Uematsu, Yushu Yang, Harold Brooks. Paper in preparation.

*“High-Throughput Data: A Non-Parametric Analysis of C Elegans’ Chemical Exposure”* – Analysis of c elegans data using non-parametric methods to account for noise; Work with Marjolein Smith, SRA International. In preparation for submission to Genetic Engineering & Biotechnology News

*“Temporal Trends in Climate Indices”* – Temporal trend analysis of drought trends over 100-yr period in 9 US regions; Work with Richard Smith for STG.

In preparation for submission to Geophysical Research Letters

Presentation for the climatology group at the National Climatic Data Center Apr 2008

## RESEARCH EXPERIENCE

### *Extreme Value Theory*

SAMSI Working Group in Spatial Extremes Sept 2009 – present

- Max-Stable Processes and Spatial Extremes

Joint work with Dr. Eric Gilleland, NCAR

Apr 2009 – present

- Large-Scale Indicators for Severe Weather Events
- Dependence: Multivariate and Spatial Structures
- Tail Behavior

Under Prof. Richard L. Smith, UNC; NCAR, NOAA grant

Jan 06 – May 2008

- Developed statistical models to predict point-level returns from grid-level returns
- Point Process Approach for Parameter Estimation
- Prediction Models; Kriging Techniques

### *Paleoclimate (Proxy) Data*

2009-present

SAMSI Working Group in Paleoclimate Applications

- Worked in collaboration to develop framework for statistical methods in temperature reconstruction

### *Paleoclimate Extremes*

2009-present

SAMSI Working Group in Paleoclimate and Extreme Value Theory

- Worked in collaboration to develop methodology for studying distributional behavior of proxy series extremes

*Kriging using Estimated Parameters w/ Bayesian Methods* Under Richard L. Smith; Thesis

- Development of non-linear predictand analogs to existing coverage probability bias and expected prediction interval length for Bayesian methods for multivariate predictions.

*Record Linkage via Bayesian Methods* Under Dr. Patrick Crockett, Constella Group; 2005

- Developed statistical methods for record linkage under maternal constraints
- Explored field priors, data updating, to produce probability based on field agreement

### *Time Series*

Under Dr. Harry L. Hurd, UNC;

2003

- Documented analysis techniques under varying conditions and variance structures

**ACADEMIC AWARDS AND UNIVERSITY HONORS**

|   |  |           |
|---|--|-----------|
| <i>Young Researcher's Award</i>                               | Winter Workshop: Environmental & Environmental Health Statistics<br>University of Florida, Gainesville, FL | Jan 2007  |
| <i>Student Travel Award</i>                                   | Objective Bayes 5 Conference, Branson, MI  | June 2005 |
| <i>Invitee, Focus Group / Panel Dinner for PhD Candidates</i> | UNC Office of the Dean   | 2005/06   |
| <i>Graduate Student Teacher of the Year</i>                   | University of North Carolina, Statistics   | 2004      |
| <i>Pre-Doctoral Scholar/Scholarship</i>                       | California State University  | 1999-2000 |

**TEACHING EXPERIENCE**

|                   |  |                 |                   |
|-------------------|--|-----------------|-------------------|
| <i>Professor</i>  | Statistics Department  | Duke University | Fall 08 - present |
|                   | <ul style="list-style-type: none"> <li>• Graduate Seminar: Extreme Value Theory and Applications</li> <li>• Thesis Adviser: Honors Thesis in Undergraduate Statistics Major</li> <li>• Basic Statistics and Quantitative Literacy (Sta10)</li> <li>• Data Analysis and Statistical Inference (Sta101)</li> <li>• Faculty Mentor: Industrial Mathematical and Statistical Modeling Graduate Student Workshop – North Carolina State University</li> </ul> |                 |                   |
| <i>Instructor</i> | Statistics Department  | UNC Chapel Hill | 2003-2005         |
|                   | <ul style="list-style-type: none"> <li>• Intro to Statistics (Calculus based) w/ Excel component (5 sections: 30-110 students)</li> </ul>  |                 |                   |

**WORK EXPERIENCE**

|                                     |   |                 |                    |
|-------------------------------------|---|-----------------|--------------------|
| <i>Visiting Assistant Professor</i> |   | Duke University | Aug 08 - present   |
|                                     | <ul style="list-style-type: none"> <li>• Undergraduate/Graduate Teaching and Research Responsibilities</li> </ul>   |                 |                    |
| <i>Postdoctoral Fellow</i>          | Statistics and Applied Mathematics Scientific Institute   |                 | Aug 08 – Jul 10    |
|                                     | <ul style="list-style-type: none"> <li>• Participation and collaboration in research programs</li> </ul>  |                 |                    |
| <i>Research Fellow</i>              | National Oceanic & Atmospheric Administration UNC,  |                 | Aug 06 – May 08    |
|                                     | <ul style="list-style-type: none"> <li>• Developed statistical models to predict point location return levels from grid-level returns</li> </ul>              |                 |                    |
| <i>Consultant</i>                   | STG   |                 | June 2007 – Aug 08 |
|                                     | <ul style="list-style-type: none"> <li>• Comparison of statistical analyses for identifying temporal trends in climate indices and hurricane data.</li> </ul> |                 |                    |
| <i>Research Statistician II</i>     | SRA/Constella Group, LLC  | Durham, NC      | 2005-2007          |
|                                     | <ul style="list-style-type: none"> <li>• Development/implementation of statistical models; Deliverables for client reports</li> </ul>                         |                 |                    |
| <i>Visiting Researcher</i>          | National Center for Atmospheric Research, Boulder, CO   |                 | 2006               |
|                                     | <ul style="list-style-type: none"> <li>• Development of statistical models in extreme precipitation;</li> </ul>   |                 |                    |
| <i>Analytics Consultant</i>         | Fair, Isaac & Company   | San Rafael, CA  | 2000-2001          |
|                                     | <ul style="list-style-type: none"> <li>• Development of decision scoring models for credit industry; Client consultation</li> </ul>                           |                 |                    |