NCAR

Weather and Society Watch

A Publication of NCAR's Societal Impacts Program **Volume 1, Number 1, October 20, 2006**

Watch This Space

by Roger A. Pielke, Jr.*

In 1990, NCAR's Mickey Glantz had the foresight to recognize that focusing on the societal impacts of weather was just as important to NCAR's mission and to society as its longer term focus on climate impacts. As a result, Mickey organized a workshop that produced a research agenda that remains current 16 years later. The agenda focused on interdisciplinary research in the areas of weather forecasts, impacts, and responses. Recent hurricanes, floods, heat waves, and winter storms demonstrate the importance of continued attention to the societal impacts of weather and the role of research in contributing to the information needs of decision makers.

In 1993, I was fortunate to begin working with Mickey and others at NCAR to implement a societal impacts research program based in the former Environmental and Societal Impacts Group (ESIG). The program was designed to foster extensive collaborations with the weather community, including government, academia, and the private sector. During my eight years at NCAR, we focused on developing wide-ranging research and outreach activities to complete the very active efforts of the U.S. Weather Research Program (USWRP), then under the leadership of Rit Carbone. Rit also spearheaded the development of an international focus on the societal impacts of weather through the World Meteorological Organization (WMO).

At ESIG we took advantage of the early years of the World Wide Web to produce what became a widely read newsletter, called *WeatherZine;* a societal impacts Web portal called "SOCASP"; and an extensive bibliography on the use and value of weather forecasts. We also developed the *Extreme Weather Sourcebook,* which contained data on the economic effects of hurricanes, floods, and tornadoes in the United States, along with a range of other data. This product became very popular with the media and with educators in particular. Over the years, however, the fortunes of the USWRP waned a bit, and its early momentum did not carry through. As a consequence, interest in the societal impacts of weather also diminished.

But the challenges posed by weather and the opportunities to use science to societal benefit have not disappeared. So it's incredibly exciting to see NCAR once again taking a leadership role in this area with its Societal Impacts Program (SIP). Led by Jeff Lazo, SIP is reinvigorating research and outreach in this area. Along with Eve Gruntfest and Julie Demuth, Jeff has also made a major contribution to education with the WAS*IS program (see "WAS*IS Changes Culture").

As the toll of weather events continues to mount, the potential for research to contribute to the needs of decision makers grows apace. Interdisciplinary research—where physical and social science meet—can play a significant role in improving the effectiveness of research spending in the meteorological sciences. NCAR's SIP has a large role to play in helping to realize this potential.

* Roger (pielke@colorado.edu) is the Director of the Center for Science and Technology Policy Research at the Cooperative Institute for Research in the Environmental Sciences (CIRES).

Accurate Risk Sign, Lake District, England
(Photo by Ilan Kelman)

In This Issue

NCAR

Weather and Society Watch

From the Director

Issuing the First *Weather and Society Watch*
by Jeff Lazo*

Welcome to the first issue of *Weather and Society Watch*! Before I go any further, I'd like to thank Roger Pielke, Jr., for "passing the torch." Actually, it might be more precise to say that Roger helped to *light* the torch for NCAR's Societal Impacts Program (SIP). Although he's no longer at NCAR, Roger is still a major contributor to the weather and society community, as well as the broader science and policy community. We hope to build and expand on his early efforts with ESIG in this newsletter while also exploring new avenues of bringing valuable weather impacts information to the weather community. Much more on that in future issues.

So what is this newsletter about? Let me first say that it's NOT about SIP. Although SIP is sponsoring and supporting the newsletter, *Weather and Society Watch* will cover broader issues—the local, national, and international societal aspects of weather and weather forecasts. We offer this newsletter to inform meteorologists, social scientists, researchers, practitioners, users, experts, and "the rest of us". We hope that the newsletter will provide a forum for readers to discuss and debate relevant issues, ask questions, and stimulate perspective.

We'll cover a wide range of important societal impact issues related to the "weather enterprise," and we plan to stay flexible to address these as best we can. We'll examine these issues at different levels—from research and applications to community building, outreach and education—because we want to reach all components of the weather and society community.

Because *Weather and Society Watch* is a work in progress, we invite you to tell us how we can make it more relevant to YOU. If you have any thoughts about what you'd like to see us cover (or not cover!), please let us know. To contribute to the newsletter, please contact Emily Laidlaw at laidlaw@ucar.edu**.**

We encourage you to spread the word about *Weather and Society Watch.* Your contacts, friends, and colleagues can subscribe at http://www.sip.ucar.edu/news/. The more people we have contributing to this effort, the better!

*Jeff (lazo@ucar.edu) is the Director of the Societal Impacts Program at NCAR.

WAS*IS Changes Culture

by Julie Demuth*

WAS*IS is a grassroots movement to effect change within the weather enterprise by fully integrating social science into meteorological research and practice in a comprehensive and sustained way. WAS*IS participants are working toward this vision in two key ways:
(1) by building an interdisciplinary community of practitioners, researchers, and stakeholders — from the grassroots up — dedicated to integrating meteorology and social science; and
(2) by teaching basic tools and social science concepts fundamental for integrated work.

WAS*IS Workshops—The First Step
In FY 2006, WAS*IS facilitated three workshops — two in Boulder, Colorado, and one in Norman, Oklahoma. In all, 86 invited participants attended. These workshops offered the initial, focused means for building the community and for learning and exploring ideas, methods, and examples related to integrating social science into meteorology. Although the structure of each workshop differed somewhat, they shared the same basic content:

• Presentations and discussions on the importance of problem definition, the challenges of doing interdisciplinary work, and the dangers of making assumptions about what and how others think

• Introduction and discussion of a variety of tools (e.g. (Geographic Information Systems (GIS), surveys, qualitative research methods, economics, decision analysis, and decision-support tools) and concepts (e.g., vulnerability and resiliency, public perception and decision making, forecasting and forecast verification, and communication opportunities and challenges)

• Presentation of examples of ongoing integrated weather and social science projects and real-world events that had large societal impacts (these often serve as great examples of success, lessons learned, or both)

• Open discussions and brainstorming about pressing challenges and opportunities for doing WAS*IS-type work

Because WAS*IS emphasizes the importance of developing long-term partnerships, the motivation and ideas of its participants play a large role in energizing and sustaining the WAS*IS movement. To date, the growing interdisciplinary peer network formed by WAS*IS workshop participants has proved to be the WAS*IS movement's most important outcome. Members use this network as a collegial environment for developing and discussing new research and practice ideas, and for developing and sharing ideas, tools, and suggestions in support of WAS*IS-type work. The network also offers career mentoring and support. The community is also growing beyond the WAS*IS participants, as each person spreads the WAS*IS vision to friends and colleagues. Ultimately, the combination of these relationships with knowledge and ideas leads to the creation of more effective socioeconomic applications and evaluations of weather information and products.

Winter WAS*IS participants hike around Boulder (Photo by Julie Demuth**)**

The Future of WAS*IS

Although WAS*IS was initially slated to be a 1-year, single-workshop venture, incredible interest and support is compelling its continued growth and evolution. Plans include two FY 2007 WAS*IS workshops: Australia WAS*IS is scheduled for January near Melbourne, and Summer '07 WAS*IS is planned for July in Boulder. To deepen the existing WAS*IS community, an edited volume of WAS*IS research projects is being developed. The volume, which will highlight the methods and results of successful integrated weather and social science projects, will serve as a foundation for undergraduate and graduate-level courses and as a reference for scientists and practitioners. Other options to broaden and deepen WAS*IS include additional workshops; "advanced" workshops that focus on a specific problem, topic, or tool; and mechanisms to instigate and support WAS*IS research, applications, and dissemination.

*Julie (jdemuth@ucar.edu) is a Visiting Scientist with NCAR's Societal Impacts Program and co-organizer of WAS*IS. Visit the WAS*IS Web site at www.sip.ucar.edu/wasis for more.

AMS Corner

Announcing the Second AMS Symposium on Policy and Socioeconomic Research
January 16–18, 2007

Perhaps you're a scientist interested in how and why your research matters to society—or how you might make your work more relevant. Maybe you're a government forecaster or private-sector weather services provider seeking to understand societal factors that limit or enhance the utility of your products and services. You might be a corporate, government, or university official, looking for a more comprehensive perspective on the policy framework in which you operate. If you fit any of these categories, the Second AMS Symposium on Policy and Socioeconomic Research is for you.

This symposium, developed by the AMS Policy Program and the AMS Board on Societal Impacts, will be held in conjunction with the AMS Annual Meeting (January 14–18, 2007). Symposium sessions will focus on participatory action research, policy and socioeconomic methodologies and applications, uncertainty communication in weather and climate forecasts, policy information dissemination, and the interaction between climate change policy and economics.

Whether you're actively doing policy research; "in the trenches," formulating and implementing policy every day; or simply seeking to expand your horizons, we encourage you to attend one or more of these sessions. The full program is posted on the AMS Web site (http://www.ametsoc.org/AMS).

For additional information, please contact:
Roger Pulwarty (roger.pulwarty@noaa.gov),
Genene Fisher (fisher@ametsoc.org), or
William Hooke (hooke@ametsoc.org).

Focus on Research

Framework for Weather-Related Fatalities Research
by Ilan Kelman*

Understanding the root causes of weather-related fatalities is an emerging research area. Previous weather-related deaths studies have tended to focus on demographic statistics (e.g., age, gender, ethnicity, and state of physical and mental health) and medical causes (e.g., drowning, physical trauma, electrocution, and heart attacks). Sometimes, the circumstances surrounding the death are also recorded (e.g., driving, in a building, or on the job). Although these data offer necessary insights, they only touch on why the deaths occurred.

Disaster research recognizes vulnerability as the root cause of disasters. To fully describe vulnerability, we must analyze not only the degree to which people and infrastructure are susceptible to harm from weather at any given time and place, but also the long-term social processes—including politics and economics—which produced the current state of potential harm. Research on weather-related deaths rarely identifies these long-term vulnerability processes, which are dominated by population growth and urbanization, inadequate economic structures, poverty, and lack of leadership and political will at all governance levels.

Development and sustainability research melds these long-term societal challenges with individual vulnerability observations to arrive at the following four levels as a framework for analyzing weather-related deaths:

1. Vulnerability processes
2. An individual's characteristics, incorporating demographic variables along with risk perception and behavioral data, such as warnings received and any warning-related actions taken
3. Hazard characteristics such as wind speed for tornadoes and water depth and debris content for floods
4. Physical mechanisms leading to death, which encompass medical causes

Driving through flood waters in Cambridgeshire, U.K.
(Photo by Ilan Kelman)

We can see, then, that the "why" of weather-related deaths is, in order of importance:

1. Sociological at the societal level (e.g., poverty, governance, livelihood options), encompassing vulnerability processes
2. Sociological at the individual level (e.g., warning, action, age, gender)
3. Environmental (e.g., high wind speed, deep water)
4. Physiological (e.g., heart attack, head injury).

*Ilan (ilan@ucar.edu) is a Postdoctoral Fellow through NCAR's Advanced Study Program, working with the Center for Capacity Building. For more information on Ilan's research, visit http://www.ilankelman.org.

Papers of Interest

Communicating Uncertainty

NAS Report (2006), "Completing the Forecast: Characterizing and Communicating Uncertainty for Better Decisions Using Weather and Climate Forecasts" http://newton.nap.edu/catalog/11699.html

NAS Report (2003), "Communicating Uncertainties in Weather and Climate Information: A Workshop Summary" http://newton.nap.edu/catalog/10597.html

Information Resources Make a Move

NCAR's SIP Acquires Valuable Weather Impacts Web Sites
by Emily Laidlaw*

During the last 8 months, we've worked with Roger Pielke, Jr., and the staff of the Center for Science and Technology Policy Research at the Cooperative Institute for Research in Environmental Sciences (CIRES) to move two of Pielke's resources on the societal impacts of weather and weather forecasting to the Societal Impacts Program (SIP) Web site (http://www.sip.ucar.edu/). We extend our sincere gratitude to Pielke and his team for their assistance with this transition and their continued cooperation in helping SIP become a comprehensive international weather impacts resource.

The *Extreme Weather Sourcebook*—now located at http://www.sip.ucar.edu/sourcebook/ — is a database of societal statistics on severe weather, including floods, hurricanes and tornadoes. The Societal Aspects of Weather site — http://www.sip.ucar.edu/socasp/ — is a clearinghouse of other Web sites about weather's societal impacts in many areas, including emergency management and the insurance industry. Soon, we'll begin updating both sites with the most current information available.

This newsletter, *Weather and Society Watch,* is modeled after another of Pielke's resources, *WeatherZine,* a bimonthly newsletter that circulated from 1996 to 2002. *Weather and Society Watch* is available online at http://www.sip.ucar.edu/news/. *WeatherZine* archives are available at http://sciencepolicy.colorado.edu/zine/archives/.

We also host a weather and society newsgroup called WxSoc on the SIP Web site. Through this newsgroup, we encourage societal impacts researchers, policy makers, and other interested parties to post and receive relevant information. For more information or to subscribe, please visit http://www.sip.ucar.edu/wxsoc.jsp.

*Emily (laidlaw@ucar.edu) is an Associate Scientist with NCAR's SIP. For more on our collection of information resources, please visit http://www.sip.ucar.edu/resources.jsp.

Upcoming Conferences and Opportunities

Southwestern Division of the Association of American Geographers (SWAAG)

The University of Oklahoma Department of Geography invites you to the annual meeting of the Southwestern Division of the Association of American Geographers (SWAAG) in Norman, OK, October 26-28. The program will include workshops, paper sessions, and presentations; contributed papers, posters, special sessions, and panel discussions are welcome. The conference will also feature a WAS*IS session. For more information, please visit http://ags.ou.edu/~swaag/.

Annual Meeting of the Association of American Geographers (AAG)

The Annual Meeting of the Association of American Geographers (AAG) will be held April 17-21, 2007 in San Francisco, California. The meeting attracts over 5,000 geographers and related professionals from all over the world, and is intended to stimulate discussion about research, education, accomplishments, and developments in geography.

The deadline for submitting a paper, poster presentation, illustrated paper, or interactive short paper is October 26. No participant may submit or take part in more than one presentation. For more information or to register, please visit http://www.aag.org/annualmeetings/SF2007/.

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Conferences *(continued from page 5)*

AAG Special Session Call for Papers

The AAG annual meeting will hold a special session on the "Climatology and Hazards of Severe Weather," cosponsored by the Climate Specialty Group and Hazards Specialty Group. This paper session will explore the climatology and hazards of tornadoes, hail, high winds, lightning, floods, and/or severe winter-weather phenomenon. Contributors are encouraged to provide descriptive or synoptic climatologies of severe weather phenomena, assess past hazards or illustrate the future risks and potential vulnerabilities of societies to severe weather events, and/or present novel techniques in overcoming issues related to severe weather reporting procedures. To present a paper in this session, please contact Walker Ashley of the Northern Illinois University Department of Geography at washley@niu.edu or 815-753-0648 by October 23. Abstract instructions are posted on the AAG website at: http://www.aag.org/annualmeetings/SF2007/paper.cfm

Fall Meeting of the American Geophysical Union (AGU)

The AGU 2006 Fall Meeting will be held December 11–15 in San Francisco. The meeting gathers more than 12,000 researchers, teachers, students, and consultants to present and review the latest issues affecting the Earth, the planets, and their environments in space. This meeting will cover topics in all areas of Earth and space sciences. For more information, please visit http://www.agu.org/meetings/fm06/

AGU Special Session Announcement

Lisa Dilling, Rebecca Morss, Genevieve Maricle and Nat Logar announce the special session PA03: "Creating usable science in the 21st Century: Strategies for more effectively connecting science to societal needs" as part of the fall AGU meeting. Although the deadline for abstract submission has past, your participation is encouraged, as the session promises to present interesting and informative papers from a variety of fields.

2007 International Symposium on Technology and Society

Theme: Risk, Vulnerability, Uncertainty, Technology and Society
Location: University of Nevada, Las Vegas
Dates: June 1-2, 2007
Abstracts Due: January 15, 2007

Abstracts are also being accepted on other traditional ISTAS topics including environmental, health and safety implications of technology; engineering ethics and professional responsibility; history of technology; technical expertise and public policy; peace technology; and social issues related to energy, information technology and telecommunications.

For more information, please visit: http://www.unlv.edu/faculty/dmh/ISTAS2007

Second THORPEX International Science Symposium (STISS)

Date: December 4-8, 2006
Location: Landshut, Bavaria, Germany
Extended abstract deadline: November 1

Two years after the well-attended First THORPEX International Science Symposium held in Montreal, Canada, the international weather research and forecasting community reconvenes in the center of Europe. This focused single session conference runs under the auspices of the World Meteorological Organization (WMO). THORPEX is 'A World Weather Research Program accelerating improvements in the accuracy of one day to two week high-impact weather forecasts for the benefit of society, the economy and the environment'.

Job and Fellowship Opportunities

Interdisciplinary Social Scientist, NCAR
The National Center for Atmospheric Research in Boulder, CO, seeks an Interdisciplinary Social Scientist to be appointed as a Scientist II or Scientist III, depending upon qualifications. Initial consideration will be given to applications received prior to November 20, 2006. Applications received after this date will be reviewed on an as needed basis.

Basic Job Function:
Conducts research on the science-society interface related to weather and climate. Collaborates closely with other ISSE, SERE, and NCAR staff and university colleagues on interdisciplinary research pertinent to ISSE's goals and mission.

Additional information:
This is a full time mid-career position involving social science/interdisciplinary research (e.g., sociology, human geography, economics, political science, policy analysis, demography, anthropology) designed to help move ISSE into a position of national and international recognition and leadership in research integrating human-environment interactions with atmospheric and Earth system dynamics.
Minimum requirements include:
Ph.D. in a social science discipline, or equivalent experience.
At least 5 years research experience in an interdisciplinary setting.

To apply for this position:
Visit http://www.fin.ucar.edu/hr/careers/uco_jobList_ext.cfm and look for Job # 6177

Send your paper resume to:
UCAR Human Resources
3065 Center Green Drive
Boulder, Colorado 80301

Christine Mirzayan Science and Technology Policy Graduate Fellowship Program, Washington, D.C.
This Graduate Fellowship Program of the National Academies—consisting of the National Academy of Sciences, National Academy of Engineering, Institute of Medicine, and National Research Council—is designed to engage graduate and postdoctoral students in science and technology policy and to familiarize them with the interactions among science, technology, and government.

Applications are now being accepted for the 2007 sessions. The program will comprise three 10-week sessions:
Winter: January 8 through March 16
Summer: June 4-August 10
Fall: September 17 through November 21

The deadline for receipt of application material is November 1 for the winter program, March 1 for the summer program, and June 1 for the fall program. Candidates may apply to all three programs concurrently.

Graduate students and postdoctoral scholars and those who have completed graduate studies or postdoctoral research within the last 5 years are eligible to apply. To obtain the necessary forms, please visit: http://national-academies.org/policyfellows.

Questions should be directed to: policyfellows@nas.edu.

About *Weather and Society Watch*

Weather and Society Watch is published quarterly by the Societal Impacts Program (SIP) at the National Center for Atmospheric Research (NCAR). The University Corporation for Atmospheric Research (UCAR) operates NCAR with support from the National Science Foundation and other sponsors.

The purpose of *Weather and Society Watch* is to provide a forum for those interested in the societal impacts of weather and weather forecasting to discuss and debate relevant issues, ask questions, and stimulate perspective. The newsletter is intended to serve as a vehicle for building a stronger, more informed societal impacts community.

Any opinions, findings, and conclusions or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the views of NSF or other sponsors. Contributions to *Weather and Society Watch* are subject to technical editing at the discretion of SIP staff.

Weather and Society Watch is available on the World Wide Web at: http://www.sip.ucar.edu/news/. Archives of WeatherZine, a previous weather impacts newsletter upon which *Weather and Society Watch* was modeled, are available on the Web at http://sciencepolicy.colorado.edu/zine/archives/.

Contact Us

For additional information or to submit ideas for a news item, please contact

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About SIP

All aspects of the U.S. public sector, along with the nation's economy, are directly and indirectly affected by weather. Although the economic impacts of weather and weather information on U.S. economic agents have been loosely documented over the years, no definitive assessments have been performed, and information generated from the previous studies is difficult to located and synthesize.

The SIP, initiated in 2004 and funded by NOAA's U.S. Weather Research Program (USWRP) and NCAR, aims to improve the societal gains from weather forecasting. SIP researchers work to infuse social science and economic research, methods and capabilities into the planning, execution and analysis of weather information, applications, and research directions. SIP serves as a focal point for developing and supporting a closer relationship between researchers, operational forecasters, relevant end users, and social scientists concerned with the impacts of weather and weather information on society. Program activities include primary research, outreach and education, and development and support for the weather impacts community.

For more general information on SIP, contact Jeff Lazo at lazo@ucar.edu or http://www.sip.ucar.edu.