## What's So Special About Specialty Groups?

Mary Walchuk

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also in facilitating the accomplishment

Do you wish you had a way to meet and communicate with other people in your field of interest? Do you attend Society for Risk Analysis (SRA) annual meetings but feel a little lost in the wide variety of disciplines represented at the meetings? Do you find yourself wondering: "Just what are those specialty groups I keep hearing about?"

"Specialty Groups have been organized to give members with particular subject-matter interests an organization within the structure of the SRA to facilitate communication among them on their particular interests," wrote SRA members Paul Deisler and Dick Schwing in *History of the Society for Risk Analysis Through the Year 2000.* "These groups also serve to present

their particular subject matters or specialties within the broad field of risk analysis to the rest of the Society by developing programs for the annual meetings and special conferences or any other means they choose to use. They are thus an excellent means of implementing SRA's overall goal of crossfertilization and integration."

The SRA has specialty groups covering eight areas: Dose Response, Ecological Risk Assessment, Economics and Benefits Analysis, Engineering, Exposure Assessment, Food/Water Safety Risk, Risk Communication, and Risk Science & Law. The styles of meetings range from once-a-year gatherings at the annual meeting to monthly teleconferences/teleseminars and discussions. The amount of involvement in Society and risk activities of the individual groups is as varied as the disciplines represented.

"The formation of specialty groups was a major step forward in the history of the SRA not only organizationally but also in facilitating the accomplishment of the SRA's mission," Deisler and Schwing wrote. If you are interested in furthering your involvement in SRA and in joining in the Society's mission, see if one of the groups described here is in your field of interest. If your discipline is not yet represented, the Specialty

Group Committee, currently chaired by Ann Bostrom (ann.bostrom@pubpolicy.gatech.edu) was started in 1994 to aid in the formation of specialty groups.

#### **Dose Response Specialty Group**

"The focus of the Dose Response Specialty Group (DRSG), as stated in our by-laws, is 'to facilitate the exchange of ideas and knowledge among practitioners, researchers, scholars, teachers, and others interested in dose-response assessment, to encourage collaborative research on dose-response assessment, and to provide leadership and play an active role in advancing issues related to dose-response assessment," said President

Gary Foureman. "We propose, develop, and sponsor scientific sessions at the national meeting. We advertise and present a student award for meritorious research every year. Recently the DRSG has administered a research project, channeling funds received from an external source to an organization capable of

of the SRA's mission."

project, channeling funds received from an external source to an organization capable of executing the research. The DRSG served as a scientific review panel of the proposal received. Researchers in the area of dose response are actively recruited by DRSG to deliver our quarterly teleseminars."

Foureman, a health scientist with the National Center for Environmental Assessment in the US Environmental Protection Agency, explained that the DRSG has a unique structure for its meetings, holding teleconferences or teleseminars on the first Tuesday of each month. "The DRSG president sets the agenda for the teleconferences with input from any member caring to offer up an item of discussion," he said. "Our teleseminars, held three times a year, take the place of the usual teleconference business meeting for that month. The seminar speakers are mostly active and prominent researchers in the

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## **Regulatory Risk Review**

#### **Momentum on Models**

David P. Clarke, Clarke Communications (C2)

Expectations run high. When the Environmental Protection Agency (EPA) held a press conference 28 January to announce its public Models Knowledge Base and its first-ever draft guidance on environmental models, it declared a certain commit-

ment—to transparency, quality, and improved modeling policies and practices overall. Now that the ball is in play, it's time

Expectations run high.

to keep it moving and, with enough energy and determination, to score big.

"By providing access to our tools and methods, we can improve the public's understanding of how sound science is used to make environmental decisions," said EPA's Science Advisor, Paul Gilman, in announcing the release of EPA's new Webaccessible database of approximately 90 most commonly used Agency environmental models and the *Draft Guidance on the Development, Evaluation, and Application of Regulatory Environmental Models*. Additionally, EPA announced that a National Academy of Sciences (NAS) committee will develop recommendations on best practices for integrating models with regulatory decisions. Some hope the NAS report, which will take about two and a half years to write, will do for environmental models what the landmark 1983 "Red Book" did for risk assessment, providing a basic framework of lasting value.

As developers and users of models, the risk assessment community would be well advised to heed what's going on at EPA with modeling these days and to contribute their wealth of experience and expertise to critique flaws in existing models and provide insights for improving the next generation. The Agency's Council for Regulatory Environmental Modeling (CREM), an idea since the early 1990s that has now become a reality, is coordinating the effort to push forward improvements.

In particular, EPA's *Draft Guidance* provides an opportunity for interested parties to understand how the Agency plans to treat the major steps of model development, evaluation, and application to ensure quality in these ubiquitous tools. For in-

stance, in discussing model framework construction, the *Draft Guidance* highlights the following key issues: "Does sound science support the underlying hypothesis? (Sound science may be defined in part, but is not restricted to, peer-reviewed theory

and equations.) Is the complexity of the model appropriate to the problem at hand? Do the quality and quantity of data

support the choice of model?" These and other issues will confront those who develop the models, as well as those who are impacted by model calculations and predictions.

On model evaluation, EPA's draft states that "policy-makers often rely on models as tools to approximate reality when implementing decisions that affect environmental systems." Yet, models are full of uncertainties. The challenge for model developers and users, EPA notes, is to decide when a model can be appropriately used to inform a decision, despite the model's uncertainties. The issues of model evaluation go to the core of concerns some have about EPA (and other) models. For instance, some insist that "no model should be used unless it has been validated," meaning that it has been "proven to correspond exactly to reality" or "demonstrated through experimental tests to make consistently accurate predictions." For EPA, however, models of necessity contain simplifications, and therefore model quality is a meaningful concept "only within the context of a specific model application" (emphasis in original). The issue isn't model "validation" but model "evaluation" relative to the specific use of the model, according to EPA's draft.

These and other issues will no doubt be taken up vigorously by the National Academies' "Environmental Decision-Making: Principles and Criteria for Models" committee, whose first meeting was in March. Long-needed discussion of fundamental modeling issues is now underway. Expect to hear quite a bit more on this subject in the coming year.

For a copy of EPA's *Draft Guidance* and access to the Models Knowledge Base go to www.epa.gov/crem.

#### Society for Risk Analysis Web Site—www.sra.org



The Society for Risk Analysis (SRA) is an interdisciplinary professional society devoted to risk assessment, risk management, and risk communication.

SRA was founded in 1981 by a group of individuals representing many different disciplines who recognized the need for an interdisciplinary society, with international scope, to address emerging issues in risk analysis, management, and policy. Through its meetings and publications, it fosters a dialogue on health, ecological, and engineer-

ing risks and natural hazards, and their socioeconomic dimensions. SRA is committed to research and education in risk-related fields and to the recruitment of students into those fields. It is governed by bylaws and is directed by a 15-member elected Council.

The Society has helped develop the field of risk analysis and has improved its credibility and viability as well.

Members of SRA include professionals from a wide range of institutions, including federal, state, and local governments, small and large industries, private and public academic institutions, not-for-profit organizations, law firms, and consulting groups. Those professionals include statisticians, engineers, safety officers, policy analysts, economists, lawyers, environmental and occupational health scientists, natural and physical scientists, environmental scientists, public administrators, and social, behavioral, and decision scientists.

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#### CALL FOR PAPERS

#### Risk Analysis: The Profession and the Future

#### Society for Risk Analysis 24th Annual Meeting - 5-8 December 2004 - Wyndham Palm Springs

Our Society is a remarkable association. Its members are scientists and practitioners trained in multiple disciplines who come from around the world. They are employed by government, industry, consulting firms, nongovernmental organizations, academic institutions, and themselves. They seek one another's company because they face problems requiring such diverse perspectives. As we approach our 25<sup>th</sup> year, it is a good time to celebrate our shared past and plan for a common future.

#### Web submission only, due 4 June 2004

## Must register by 8 October in order for abstract to be in Final Program Following is a brief listing of meeting information. For complete information, go to www.sra.org.

#### Poster Presentations/Poster-Platform Presentations

Poster sessions will be grouped by subject and presented either in larger groups, with author attendance during meeting breaks, or in smaller groups as poster-platform sessions. The latter include three-minute descriptions by authors at the start of each session, facilitated by a session chair assigned by the Program Committee.

#### **Oral Presentations**

Oral presentations will be grouped by subject and assigned a session chair by the Program Committee. Each oral presentation should take 15 minutes, followed by 5 minutes for audience questions and comments.

#### **Symposia**

Symposia address a particular subject of interest through a multidisciplinary format. Symposium proposals are submitted as such and are not organized by the Program Committee. Generally, symposia follow the same format as the oral presentations and are limited to one 1 1/2-hour session to the extent possible.

#### **Best Paper Competition**

SRA invites presenters to submit a 5-10 page extended outline by 30 July in any one of the program topic areas to compete for Best Paper Awards. Members will still have to submit the "normal" abstract by **4 June 2004**. The best papers will receive recognition at the meeting and possible publication in the SRA journal, *Risk Analysis*.

#### **Specialty Group Awards and Panels**

Many of the SRA specialty groups will be sponsoring awards and special panels. For more information, see the complete Call for Papers on the SRA Web site (www.sra.org).

#### Workshops

Workshops will take place on Sunday, 5 December, one day prior to the regular meeting sessions. Workshop proposals are evaluated by the Conferences and Workshops Committee, not the Program Committee.

#### Exhibits '04

There will be an exhibition of risk- and exposure-related products and services at the Annual Meeting. Companies or individuals may exhibit computer software, data bases, or other products. For further information on exhibiting, contact Lori Strong (LStrong@BurkInc.com) or Sue Burk (SBurk@BurkInc.com) at 703-790-1745, fax: 703-790-2672.

#### **Book Exhibit**

The meeting will once again include a combined book exhibit. For \$50 per title, books will be displayed and each attendee will be provided information through our list of publications. The list will include prices, any discounts that may be offered, and ordering information. Note that submitted titles will not be returned to the publisher. For more information or book reservation forms, contact Lori Strong (LStrong@BurkInc.com) at 703-790-1745, fax: 703-790-2672.

#### **Preliminary Program**

Preliminary programs will be mailed to members of the Society, as well as to those nonmembers whose abstracts have been accepted. Final programs will be available at the meeting in December. Preregistration and hotel reservation materials will be mailed as a part of the preliminary program.

#### **Presentation Information**

This year, only computer projection of PowerPoint slides will be available for oral presentations. You will be required to submit your presentation ahead of time. Only PowerPoint97 or higher presentations will be accepted.

Please be aware that a large number of submissions selected will be presented as posters. Poster board dimensions: 8' wide x 4' high. Poster presenters must be available at designated session times.

Authors are encouraged to bring a written version of their papers for handout as there will be no published proceedings of the meeting.

#### **Questions?**

#### Go to www.sra.org for the complete Call for Papers or contact one of the following:

Cochair, Meetings Organizing Committee—Gail Charnley, charnley@healthriskstrategies.com Cochair, Meetings Organizing Committee—Steve Lewis, stevenclewis@alumni.indiana.edu SRA Secretariat—phone: 703-790-1745, fax: 703-790-2672, email: SRA@BurkInc.com

#### (Specialty Groups, continued from page 1)

field of dose response." This format allows members to meet regularly without having to travel. The group also holds its annual business meeting and a social mixer at the national SRA meeting each December.

The DRSG was started in 1994 by its first president, Michael Dourson. Currently there are approximately 105 members in the group which Foureman says offers "pleasant, constructive informative personal interactions with some of the brightest minds in the field of dose-response investigation and application."

"We provide scientific input to the national organization through recommendation and sponsorship of sessions, workshops, and roundtables for the national meeting in matters relating to dose response," he added. "Because of the daily activities many of us have in matters of dose response, DRSG bears an intellectual obligation to the entire risk-assessment community to always be alert for matters new, developing, or controversial concerning dose response. This group should serve as a crucible for considering these matters."

The annual dues that are requested for membership in DRSG (currently \$15) are voluntary, with the student travel award being the principal use of those funds. If you are interested in learning more about the Dose Response Specialty Group visit its Web site (www.sra.org/drsg) or contact Foureman (foureman.gary@epamail.epa.gov) or any member of the DRSG Executive Committee.

#### **Dose Response Specialty Group**

www.sra.org/drsg contact: Gary Foureman, foureman.gary@epamail.epa.gov

# **Ecological Risk Assessment Specialty Group**

"The Ecological Risk Assessment Specialty Group (ERASG) was formed in 1991 in response to rapid developments in ecological risk-assessment methods and their increasing application to risk-management decisions, particularly at federal Superfund sites," said Chair Randy Ryti. "The principle objective of the ERASG is to provide a forum for those interested in the application of quantitative risk-assessment techniques to ecological and environmental risk-management issues. The group's current focus includes a wide range of issues, including harmonization of human health and ecological risk assessment, and ecological risk assessment of physical and biological stressors, including physical disturbance, climate change, invasive species, and bioterrorism. We are also interested in promoting the applicability of newer techniques, such as Bayesian statistics and spatially explicit analysis, in ecological risk assessments."

Ryti, senior scientist at Neptune and Company, Inc., said the group offers members an "opportunity to get involved in planning the annual meeting and to encourage communication with other risk disciplines." The group also has sponsored an ERASG student travel award to encourage more student participation with SRA. The first chair of the group, which now has 84 members, was Larry Barnthouse; he was succeeded by Laura Haselow, Bill Alsop, Bruce Hope, and Igor Linkov.

ERASG encourages member interaction and feedback during quarterly teleconferences and other correspondence, and has primarily met in conjunction with the annual meeting, supporting platform and poster sessions, symposia, and work-

shops. "The chair typically recruits the volunteer assistance of several session and symposia chairs to identify topics and gather speakers and posters for the annual meeting," Ryti explained. "Working with the Conferences and Workshops Committee, the group may cosponsor other events, including SRA forums and conferences. The group's activities are coordinated with the Society of Environmental Toxicology and Chemistry (SETAC) and other professional societies."

Anyone interested in joining the ERASG can find more information on the group's Web site (www.neptuneandco.com/sra-erasg) and should contact Ryti (rryti1@neptuneinc.org).

#### **Ecological Risk Assessment Specialty Group**

www.neptuneandco.com/sra-erasg contact: Randy Ryti, rryti1@neptuneinc.org

# Economics and Benefits Analysis Specialty Group

"The purpose of the Economics and Benefits Analysis Specialty Group (EBASG) is to provide a forum for economists, risk assessors, scientists, and policy makers to discuss economics and risk-assessment issues," said Chair Cristina McLaughlin. "While the focus of the specialty group is to examine integrating economics and risk assessment, the group also hopes to promote a better understanding between economics and other disciplines that are related to risk analysis. The economics specialty group would like to increase awareness to the risk analysis community about the contribution of economics."

The EBASG was formed during the SRA annual meeting in Seattle (2001) in response to a growing interest in SRA to address economics as it relates to risk analysis and held its first official meeting at the 2002 annual meeting in New Orleans. Its first officers were Bob Scharff and Scott Farrow. The EBASG has a membership of approximately 40 and holds an informal meeting during the SRA annual meeting, sometimes meeting one more time during the middle of the year.

"Keeping with the theme of promoting a better understanding across disciplines, the EBASG sponsored several symposia and two half-day workshops during the SRA annual meeting in Baltimore," McLaughlin said. "The symposia and sessions included (a) integrating risk and economics, (b) the economics of natural systems, (c) genetically modified crops, and (d) evaluating risk trade-offs. The group-sponsored workshops held on Sunday, prior to the annual meeting— 'Elementary Economics for Non Economist Risk Assessors' and 'Public Choice, Risk Analysis and the Development of Regulations'—were a great success."

"The EBASG hopes to have an equally exciting meeting during the next SRA annual meeting in Palm Springs, California, and is encouraging a broader call for papers in other professional outlets," McLaughlin added. "Also, for the first time, the EBASG will provide a student best paper award."

To get more involved, organize a symposia or workshop, offer ideas or suggestions, or join the group, contact either Cristina McLaughlin (cristina.mclaughlin@cfsan.fda.gov) or Curtis Haymore (chaymore@cadmusgroup.com).

#### **Economics and Benefits Analysis Specialty Group**

contact: Curtis Haymore, chaymore@cadmusgroup.com or Cristina McLaughlin, cristina.mclaughlin@cfsan.fda.gov

#### **Engineering Specialty Group**

"The focus of the Engineering Specialty Group (ESG) is applications of risk assessment and management to engineered systems," said Chair Ali Mosleh. "Engineering risk analysts and researchers have pioneered the development and application of formal methods to quantitative risk analysis broadly applicable to many complex processes and physical, social, and environmental systems. One of the ESG objectives is to improve the awareness of the Society members of these methods and tools."

Formed in 1990 by Bill Gekler, the ESG currently has 55 members and meets once a year at the SRA annual meeting. "The ESG meeting is a rather informal gathering of members, organized by the chair," said Mosleh, professor and director at the Center for Risk and Reliability in the Reliability Engineering Program at the University of Maryland. "Members attending report on their activities in relation to SRA. Discussions include plans and ideas for promoting membership and more active participation by the engineering risk community, joint sessions with other specialty groups, collaborations with other professional societies, encouraging paper submission to the SRA journal, *Risk Analysis*, and student and member awards and nominations."

The ESG plans to have a Web site in place before the next specialty group meeting in December. Those interested in joining the group should contact Mosleh (mosleh@eng.umd.edu).

#### **Engineering Specialty Group**

contact: Ali Mosleh, mosleh@eng.umd.edu

#### **Exposure Assessment Specialty Group**

"The Exposure Assessment Specialty Group (EASG) offers members access to the latest research in exposure assessment," said Chair Susan Flack. "We also provide a forum for interaction with top practitioners in the field of exposure assessment." The EASG was started in 1990 by Paul Price and currently has 96 members. Past chairs include Kim Thompson, Rick Reiss, Pamela Williams, and Susan Youngren, who remain active members of the group.

According to Paul Price of the Lifeline Group: "There were many papers on how to do exposure assessments for Superfund at the 1990 annual SRA meeting in New Orleans when the idea for an exposure specialty group within SRA was proposed. The Risk Assessment Guidance for Superfund (RAGS) document had just been released by EPA, and SRA members wanted to know more about residential exposure and Monte Carlo analysis. The EASG subsequently sponsored two workshops on residential exposure assessment at annual meetings in San Diego and Savannah. EASG members also initiated the development of a Reference House sourcebook similar to the Reference Man used in radiation dose assessment. The book was published in 2000 as Residential Exposure: A Sourcebook. A workshop updating residential exposure assessment is also planned for the 2004 national meeting in Palm Springs."

The EASG meets once a year during the SRA annual meeting, enjoying a social hour followed by a business meeting and awards presentation. Conference calls are held several times during the year for purposes of planning sessions and symposia for the annual meeting.

At the December 2003 SRA National Meeting in Baltimore, the EASG endorsed symposia and individual presentations pertaining to several exposure-related topics including (1) The Voluntary Children's Chemical Evaluation Program, (2) Expert Judgement in Characterizing Uncertainties for Quantitative Risk Assessment, (3) Probabilistic Methods to Assess Worker Exposure to Agricultural Pesticides, (4) Bioavailability/Uptake for Human or Ecological Exposures, (5) 2-dimensional Monte-Carlo Models, and (6) Value of Informations Techniques. "For the first time, in 2003 the EASG presented an annual award for the best student research paper in exposure assessment," added Flack, supervising health scientist at ChemRisk®. The group is asking members for annual dues (currently \$10) starting in 2004 to defray travel costs for the author of the best student research paper to attend and present his/her work at the national meeting. "We also have a goal to increase membership and group interaction during the year, especially at the local level," Flack said.

Anyone interested in learning more about the Exposure Assessment Specialty Group can contact Chair Susan Flack at sflack@chemrisk.com or 303-417-1046 ext 1013; Chair Elect Donna Voorhees at dvoorhees@menziecura.com or 781-782-6143; or Secretary Sheryl Beauvais at sbeauvais@cdpr.ca.gov or 916-445-4268.

**Exposure Assessment Specialty Group** 

contact: Susan Flack, sflack@chemrisk.com

#### Food/Water Safety Risk Specialty Group

"The Food/Water Safety Risk Specialty Group (FWSRSG) is organized to focus on the particular risk analysis issues and challenges posed by hazards in the food and water consumed by humans and animals," explained Chair Ewen Todd. "Of primary concern are biological, chemical, and physical hazards that are naturally occurring or result from substances intentionally or unintentionally added during production or processing (for example, pesticides, food additives) and drinkingwater disinfectants."

"The FWSRSG offers members opportunities for networking with colleagues in food and water risk assessments, modeling, and management/policy issues and offers input into potential symposia," said Todd, director of the National Food Safety and Toxicology Center at Michigan State University. "The group also brings more members potentially to SRA with a long-term commitment to the organization and gives opportunities for jobs in risk analysis through postings and networking and awareness of where the risk analysis work is being done in the United States and other countries."

The FWSRSG was started by Mike McElvaine and other members at the 1996 SRA Annual Meeting. Over 100 members are on the group mailing list; over 50 attend the group meetings which are held at the SRA annual meeting and include an evening business meeting followed by a social. The FWSRSG has informal links with the Dose Response and Economics and Benefits Specialty Groups

"Since its formation eight years ago, the FWSRSG has been active in putting on symposia and workshops at the annual meetings; 2003 was no exception," Todd said. "The following symposia, proposed by FWSRSG, were a part of the 2003 Annual Meeting program: (1) assessment of risks and benefits to health and environment for genetically modified organisms, (2) inte-

grating epidemiological data in risk assessment, (3) mycotoxins, risks, regulations, and economic impacts, (4) risk assessment and food security, (5) pathogen performance standards, and (6) insight from risk assessment and economics (joint with Economics and Benefits Analysis Specialty Group). There were also two poster platforms: (1) microbial and chemical risks and (2) food/water safety risk analysis modeling and case studies."

More information on the FWSRSG can be found at http://members.tripod.com/Cristina704/Foodrisk/. Anyone interested in joining the group should contact Secretary Mark Powell (mpowell@oce.usda.gov) or Vice Chair Felicia Wu (felicia@rand.org).

#### Food/Water Safety Specialty Group

http://members.tripod.com/Cristina704/Foodrisk/contact: Mark Powell, mpowell@oce.usda.gov

#### Risk Communication Specialty Group

"The primary focus of the Risk Communication Specialty Group (RCSG) is risk communication and risk perception," said Chair Joseph Arvai. "The group is also focusing on improving deliberation for decision making (along the lines of the 1997 National Research Council Report, *Understanding Risk*). The group provides opportunities for networking with fledgling and established risk communication researchers and practitioners and provides a way of meeting established risk communication researchers and getting up to speed more quickly with new developments in the field."

The RCSG was started in 1990 by Ann Fisher and currently has approximately 125 members. The group meets once a year at the SRA annual meeting, where it holds a business meeting and elections and announces the winner of its student paper award. However, the group is involved in many other activities. These include planning for the annual meeting, online discussion of risk communication topics (via the risk communication listserv), a student paper competition and award, occasional small sponsored research projects from time to time (for example, a practitioner's risk communication bibliography, some years ago), planning of special competitions (for example, the recent special risk communication issue of Risk Analysis, published April 2003), participation in new initiatives such as the job fair (Katherine McComas, previous past chair), occasional mixers or special speakers at the annual meeting, planning of special supplemental meetings (the group is currently planning to submit a grant proposal for a special separate risk communication symposium in 2005), and some involvement in SRA continuing education risk communication offerings (largely through Steve Lewis, to date, to whom the group owes a debt of gratitude).

"The specialty group helps focus and forward risk communication interests in the Society, including in the planning of the annual meeting," said Arvai, a professor of environmental decision making in the School of Natural Resources at The Ohio State University and Research Scientist at Decision Research. "Risk communication is a critical interface between risk analysis (research and practice) and other interests in society. The RCSG helps bring the relevant sciences to bear on risk communication, including improving the incorporation of risk perception research into risk communication practices. And it helps bring risk perception and communication research to bear on risk analysis, fostering participatory approaches to risk analysis. Many mem-

bers of SRA who aren't active in RCSG also have primary interests in risk communication (or should)."

"Risk communication has grown in SRA; the RCSG now represents at the annual program planning meeting a sizeable proportion of the submissions to the SRA annual meeting," he added. "Because of the large number of high-quality submissions, the group has the luxury of being much more selective with respect to the acceptance of materials for presentation at the annual meeting. The recent elections of internationally recognized risk communication scholars as presidents of SRA are probably—at least in part—both a consequence and cause of this growth. The RCSG wants to see this same healthy growth across the other specialty groups and supports the continued focus in SRA on a balanced, multidisciplinary approach to and solid science in all aspects of risk analysis. One of the best features of SRA is that it bridges disciplines and promotes dialogue across the risk paradigm."

For more information on the RCSG see www.sra.org/rcsg/ or contact Arvai (arvai.7@osu.edu) or any executive committee member. Membership is fairly informal, other than the membership fee (which is waived for students).

#### **Risk Communication Specialty Group**

www.sra.org/rcsg contact: Joseph Arvai, arvai.7@osu.edu

#### Risk Science & Law Specialty Group

"The primary focus of the Risk Science & Law Specialty Group (RSLSG) is interface between risk assessment and laws, regulations, and courtroom proceedings," explained Chair Susan Poulter. "According to the RSLSG Web site, the group's goal is to 'provide leadership in collaborative scientific and legal research and in identifying and illuminating issues that arise from risk-related legislative acts, regulatory rules, and judicial proceedings."

"Our specialty group offers SRA members the opportunity to participate in discussion and education about the major laws and policies affecting risk assessment and to educate members of the legal profession about risk assessment," added Poulter, professor of law at S.J. Quinney College of Law at the University of Utah. "While most organizations focus on either the technical or the legal aspects of risk assessment, our group attempts to bridge that divide by focusing on the interrelationship between them. We bring expertise in an important aspect of risk assessment—the legal environment that is driving the need for risk assessment and affecting how risk assessment is conducted. Risk assessors acquire a greater understanding of the legal environment in which they work. Members who are lawyers also bring into our separate professional lives a better understanding of the science of risk assessment."

The RSLSG was started in 1996 by Wayne Roth-Nelson, who worked in risk assessment. He recruited a number of lawyers working in the fields of environmental and toxic tort law to participate in the annual meeting and continue working in the group. Now there are approximately 135 members of the group which holds informal business meetings every year at the SRA annual meeting. Other meetings of the executive committee occur by email or conference call.

"Our main activities are sponsoring symposia at the annual meeting, usually a developments panel and one or two panels on current topics of interest," Poulter said. "We also put together a Case Book of judicial decisions involving risk assessment. The Case Book is posted on the section Web site. This year, through the generosity of Gail Charnley and Don Elliott, we will also sponsor a student paper competition in connection with the annual meeting."

More information on the RSLSG can be found at http://www.riskworld.com/profsoci/SRA/RiskScienceLawGroup/.

Those interested in joining the group should contact Membership Vice-Chair Vern Walker (lawvrw@mail1.hofstra.edu).

#### Risk Science & Law Specialty Group

www.riskworld.com/profsoci/SRA/RiskScienceLawGroup/ contact: Vern Walker, lawvrw@mail1.hofstra.edu



## **Specialty Groups**

#### **Risk Communication Specialty Group**

Joseph Arvai, Chair, and Cliff Scherer, Chair-Elect

Readers of this update from the Risk Communication Specialty Group (RCSG) need not be reminded of how quickly time passes. Though it was not long ago that we met in Baltimore, preparations are already underway for the 2004 Annual Meeting in Palm Springs. While you will be hearing from the Society for Risk Analysis (SRA) shortly regarding a call for abstracts, we in the RCSG wanted to get the word out early about two aspects of the upcoming meeting—one familiar and one new.

First the familiar: the RCSG, with the gracious support of ExxonMobil, will again hold its annual Student Paper Competition. The quality of submissions has been improving each year. Some of last year's papers were worthy of submission to peerreviewed journals, but others were not up to minimal professional standards. We'd like to encourage students wishing to enter the competition to begin working on their manuscripts now. The primary purpose of this competition is to encourage high-quality student work. As such, papers submitted for this competition should be as complete and professional as papers that authors would consider for submission to a quality journal. It's our hope that only manuscripts that discuss "completed" scholarly efforts will be submitted (for example, manuscripts that discuss research efforts where the data collection is far from complete are unlikely to review well). Regarding the question of nonstudent coauthors, we expect students submitting papers to work closely with faculty in developing their papers. If student authors feel that the contribution of an advisor has been significant, it may be appropriate to include her or him as a second author on the manuscript. As the primary author, however, the lion's share of the work in conceptualizing and writing the paper should be undertaken by the student.

New at the upcoming meeting in Palm Springs are two competitive panels that RCSG will host. The objective of these panels will be to showcase high-impact, cutting-edge developments in risk communication and related disciplines. Authors wishing to compete for one of the eight time slots in these panels will need to submit abstracts to SRA (in the regular manner) by the conference submission deadline. In addition to submitting an abstract, however, authors will also need to sub-

mit completed papers for peer review by the conference submission deadline to Dr. Joseph Arvai, the current chair of the RCSG. Papers selected by the peer-review committee will be awarded time slots in the competitive paper panels.

#### **Dose Response Specialty Group**

Gary L. Foureman, President; Ralph Kodell, President-Elect

The Dose Response Specialty Group's (DRSG) first teleseminar of 2004 was delivered during the 2 March meeting time by Dr. Michael Luster of the National Institute for Occupational Safety and Health (NIOSH). His talk, "Arsenic: Proposed Mechanisms and Risk Assessment Implications," was well attended and evoked lively and stimulating discussion among the teleattendees on the conundrums of arsenic dose response and metabolism. The next teleseminar, 1 June, is scheduled to be given by Dr. Dave Gaylor of the National Center for Toxicology Research (NCTR) on nonmonotonic doseresponse relationships. All are encouraged to participate (see below for call in # and code).

The DRSG Executive Committee reviewed and approved a research project submitted by the Duke Center for Environmental Solutions (Jonathan Wiener, Director). This project, an analysis of the use and meaning of "adverse effect" in various statutes and regulations, is now funded (by sources external to DRSG and SRA) and underway. The DRSG is available to administer viable scientific projects related to dose-response projects from any source.

The primary focus of the DRSG's first regular teleconference of the year, held in January, was on developing scientific sessions for the national meeting. Several prospects were identified and are being pursued by the membership. The subject areas of a few of these preliminary sessions include development of models for pregnant females and developing fetuses, dose-response relationships in mixtures, characterization of variability in toxicity testing, and microbial risk assessment. Any SRA member interested in contributing to these sessions, or in proposing other sessions related to dose response, is most welcomed to contact any one of the DRSG Executive Committee (see the DRSG Web site linked to the SRA site) or to attend our monthly telemeetings, held the first Tuesday of the month, from 3:30 to 4:30, by calling 202-275-0166 and entering code 0577# when prompted.

#### Corrections and Updates to the Contact Lists in the First Quarter 2004 RISK newsletter

**Committee Chairs** 

Advisory Board: the correct email address for James Wilson is wilson.jimjudy@att.net

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London: Ragnar Löfstedt, ragnar.lofstedt@kcl.ac.uk



## **SRA-Europe**

# Report from the Young Scientist Workshop "Natural Hazards" of the Society for Risk Analysis-Europe and the AlpS-Center for Natural Hazard Management Innsbruck, Austria, 4-6 March 2004

Andrea T. Thalmann, Information Officer

Putting emphasis on natural hazards, in March 2004 the Society for Risk Analysis-Europe (SRA-E) and the AlpS-Center for Natural Hazard Management organized the first Young Scientist Workshop. The meeting was hosted by the AlpS-Center for Natural Hazard Management and took place in Innsbruck, Austria. The impressive Alpine scenery around Innsbruck contributed to the stimulating atmosphere, enabling interesting presentations and in-depth discussions.

#### **Workshop Opening**

The workshop was opened by Dr. Peter M. Wiedemann, past president of SRA-E and key researcher at AlpS, Professor Dr. Hans Stötter, key researcher at AlpS, and Dr. Eric Veulliet, managing director of AlpS, talking on "Interdisciplinary Research in the Field of Natural Hazard."

#### **Presentations and Participants**

Broadening multidisciplinary perspectives and foci on the research about natural hazards, junior researchers from more than 10 different countries (who are currently working on their PhD theses) were invited to present their projects.



Attendees from various professional disciplines (communication science, economic, ethnology, geography, psychology, sociology, and more) contributed to the workshop, presenting the following topics: "Temporal GIS-Based Assessment of Climate Risk"; "Risk Management of a Governmental Fund for Natural Disasters"; "Development of Avalanche Risk 1950-2000 in the Municipality of Davos, Switzerland"; "Attribu-



Speaker Nathan Wood

tion Possible Causes of the Galtür Avalanche Disaster—A Risk Perception Study"; "Risk Perception from a Social-Anthropological Point of View: A Theoretical Framework"; "Determination of the Damage Potential—A Contribution to the Analysis of Avalanche Risk"; Earth Observation Based Flood Monitoring in the Senegal River Estuary and Valley"; "Floods and Medium Sized Companies, Towards a Self Diagnosis Tool for Vulnerability Reduction"; "Psychological Contributions to Methodologi-

cal Renewal in the Risk Perception Field: Repertory Grids as Tools to Enhance Risk Perceptions Studies"; "Risk Perception from Natural Hazards in Germany—Empirical and Methodological Findings"; "The Social Amplification of Rare and

Extreme Events: A Longitudinal Analysis of Media Effects on Protective Travel Behavior, 1978-2002"; "Laypersons' Perception of Risk Management Measures in Galtür"; "Mental Models of Flash Floods and Landslides"; "Vulnerability of Coastal Port and Harbor Communities to Rare Earthquakes and Tsunamis in the Pacific Northwest, USA"; and "Monitoring of Snow Avalanche Risk as a Decision Support in Risk Management." For more details about the presentations please take a look at the AlpS Web site (www.alps-gmbh.com).

#### **Best Paper Award**

The winner of the Best Paper Award was Christine Jurt from the Swiss Federal Institute WSL, Switzerland. Under the topic

"Risk Perception from a Social-Anthropological Point of View: A Theoretical Framework" she presented first results of her PhD project, part of the interdisciplinary project PINE (Predicting Impact on Natural Ecotones) that is supported by the European Commission. Her approach, using qualitative methods (semistructured interviews and participatory observation), was appreciated by workshop participants. Collecting qualitative data in a three-month field-



work stay in an Alpine village, mental models concerning natural hazards of different stakeholders were identified. Based on the expected results, new insights for a better understanding of mental models within and between communities will be gained. The award was sponsored by the SRA-E.

#### Feedback from the Attendees

In a final workshop reflection, the attendees appreciated very much the multidisciplinary approaches on risk research regarding natural hazards. The preparation of the workshop and workshop arrangements was highly rated. The multidisciplinary focus on one research topic—"natural hazards"—was much valued. The provided opportunity to gain new insights in other disciplines regarding the same risk research field and to share experience from different scientific backgrounds was of great importance for all participants. The workshop was a full success for all participants and was a great contribution to the field of risk research.



#### Acknowledgment

A special thanks to Dr. Christian Büscher, Senior Researcher at AlpS, who was charged with the organization of the workshop. Further, SRA-E and AlpS-Center thank sponsors Swiss RE (www.swissre.com) and Tiroler Zukunftsstiftung (www.zukunftsstiftung.at) for their support.

#### Emergent Risks and Risk Management in Europe 13<sup>th</sup> Annual Conference of the Society for Risk Analysis-Europe 15-17 November 2004, Paris, France

The next annual conference of the SRA-E will be held 15-17 November 2004 in Paris, France, and will be hosted by Olivier Salvi (INERIS, Executive Committee Member of SRA-E), National Institute for Environment and Industrial Risks, France (INERIS, www.ineris.fr), and the Department Industrial Risks Management, France (EDF R&D, www.edf.com).

The theme of the 2004 SRA-E conference is "Emergent Risks and Risk Management in Europe," reflecting the demand of new approaches to meet current developments of risk culture in Europe.

#### **Call for Papers**

Abstracts should be submitted by 31 May via the conference Web site: www.sraeurope.org.

#### **Topics**

The program for the conference will include the following special topics: (a) low signals and emerging risks, (b) developing a risk culture, (c) risks in urban environment, (d) integrated approaches and global risk management, (e) research in the training for risk manager, and (f) evolution of policies and regulation: prescription towards objective-oriented. The objectives of the congress are to address questions like how to respond to new and unexpected risks, what measures to take towards a risk culture, how to organize learning from experience, and how to develop a knowledge-based risk management.

#### **Working Groups**

In relation to the topic, the SRA-E conferences offer the opportunity for researchers to structure a field of research and enable them to launch new projects that could be funded by several countries and/or by the European Com-

mission. This could be organized by researchers in working groups. Topics refer to the following: use of multicriteria analysis and decision making in risk management; land-use planning around hazardous plants and infrastructures; integration of risk management health, safety, and environmental protection; governance in a risk-informed society; and risk communication.

For more information on the SRA-E 2004 Conference, including submission information for the papers, posters, and workshops, registration forms, and hotel information, visit the conference section of the SRA-E site (www.sraeurope.org).

#### The Management Board of the SRA-E 2004 Conference

Chairmen of the Organizing Committee: Olivier Salvi (Scientific Manager, Accidental Risk Division, National Institute for Environment and Industrial Risks, France [INERIS]), and Yves Dien (Industrial Risk Management, Department Industrial Risks Management, France [EDF R&D])

Chairman of Scientific Committee: Jean-Fran Vois Raffoux (Scientific Director, INERIS)

SRA-E Executive Committee: Peter T. Allen (President), Peter M. Wiedemann (Past President), Jan M. Gutteling (Treasurer), Olivier Salvi (Chair of Nominations Committee), Scira Menoni (President-elect), Walter R. Stahel (Committee Member), Andrea T. Thalmann (Information Officer).

Conference Secretariat: SRA-Europe, c/o In Conference Ltd, 10b Broughton Street Lane, Edinburgh EH1 3LY, Scotland, UK; phone: +44 (0)131 556 9245; fax: +44 (0)131 556 9638; email: sra-e@in-conference.org.uk



## **Member News**

#### **Igor Linkov**

Igor Linkov joined Cambridge Environmental, a small woman-owned consulting and research firm in Cambridge,



Massachusetts, following three years with ICF Consulting. Cambridge Environmental specializes in human health and ecological risk assessment, environmental fate and transport modeling, and data analysis. As a senior scientist, Linkov will perform state-of-the-art ecological and human health risk assessments and environmental investigations for contaminated sites

in the United States and worldwide. He will also develop new risk assessment methods and tools, including spatially explicit ecological risk assessment, multicriteria decision analysis, probabilistic modeling, and Bayesian methods. Cambridge Environmental is known for its ability to provide creative, highend services that add value on many projects, and Linkov is well positioned to provide insights and alternative approaches for the company's clients.

Linkov will continue his work for SRA. He is currently a member of the Conferences and Workshops Committee and is serving as past president for the SRA Ecological Risk Assessment Specialty Group. Linkov is also president-elect for SRA's New England Chapter. He is currently organizing several work-

shops and conferences supported by SRA, including the NATO workshop on Environmental Security (Eilat, Israel, April 2004), the SRA Workshop on Comparative Risk Assessment and Multicriteria Decision Analysis (Palm Beach, Florida, June 2004), the NATO Workshop on Ecotoxicology and Ecological Risk Assessment (Greece, October 2004), and the NATO workshop on Multicriteria Decision Analysis for Harbor Safety (Greece, Spring 2005).

Linkov can be reached at Cambridge Environmental Inc., 58 Charles Street, Cambridge, MA 02141 (USA); phone: 617-225-0812; fax: 617-225-0813; email: Linkov@CambridgeEnvironmental.com; Web site: www.CambridgeEnvironmental.com.

#### Ian Miller

Ian Miller has left Golder Associates Inc. to join the GoldSim Technology Group, a new business providing a software product, GoldSim, and associated consulting services that revolve around risk and uncertainty analysis using computer models that simulate the performance of complex systems in business, engineering, and science. Ian can be contacted at GoldSim Technology Group LLC, 22516 SE 64<sup>th</sup> Place, Suite 110, Issaquah, WA 98027 (USA); phone: 425-894-5172; email: imiller@goldsim.com; Web site: www.goldsim.com.



## **Chapter News**

#### Southern California Chapter

Anna Olekszyk, President

#### Highlights from RISK Resources Newsletter of the SCSRA

On 12 November 2003 the Southern California Chapter of the Society for Risk Analysis (SCSRA) had a fascinating dinner meeting presentation, where Professor Najm Meshkati of the University of Southern California, a renowned expert in human factors, discussed "Human Error in Medicine: The Real

Risk to Life and Limb." The following is a summary of his talk:

According to a New York Times article, "The biggest threat to life and limb (comes from) what happens to you once you reach the doctor's office or hospital" (Sunday, 24 June 2001, Section 4, p.1). The notable study by the Institute of Medicine (IOM) of the US National Academy of Sciences, "To Err Is Human: Building a Safer Health System" (November 1999), contended that medical errors in the United States each year result in "up to 98,000 deaths and \$29 billion added cost." Human error has been indicated as the primary cause for 69% of iatrogenic (caused by treatments) injuries in patients hospitalized in New York State in 1984.

These were due to "potentially preventable" errors (the balance was unavoidable). Nearly half of these injuries were related to a surgical operation and 14% of them were fatal. "If these rates are typical of the United

States, then 180,000 people die each year partly as a result of iatrogenic injury, the equivalent of three jumbo-jet crashes every 2 days" (Professor Lucian L. Leape of Harvard in the *Journal of the American Medical Association*, 21 December 1994, p. 1851).

The IOM study emphasized that most of the medical errors are systems related and not attributable to individual negligence or misconduct. The key to reducing medical errors is to focus on improving the systems of delivering care and not to blame individuals.

Medical and health-care industries could utilize (and learn from lessons and) experience of other (for example, nuclear, aviation, petrochemical) technological systems that human errors are caused by human-machine, human-task, or humanorganization mismatches. As research has shown, in most cases operator error is an attribute of the whole technological system—a link in a chain of concatenated failures—that could result in mishaps. More specifically, these mismatches could also stem from inappropriate work conditions, lack of familiarity, improper or poor workstation and workplace designs, complicated operational processes, unbalanced workload, unsafe conditions, faulty maintenance, disproportionate attention to production, ineffective training, lack of motivation and experiential knowledge, nonresponsive managerial systems, poor planning, nonadaptive organizational structures, rigid job-based pay systems, haphazard response systems, and sudden environmental disturbances.

#### Risk Management Plan (RMP) Updates The Time Is Now!

On 11 February 2004 we held the 2<sup>nd</sup> Risk Management Program Specialty Workshop, "Risk Management Plan (RMP) Updates—The Time Is Now!", that turned out to be a much-needed and timely topic. We had over 120 attendees with very informative presentations by knowledgeable speakers.

#### **Topic of Presentations**

Checklist for RMP 5-Year Update, LEPC Region I CalARP Update Guidelines (General), LEPC Region I CalARP Update

Guidelines (Seismic), PHA Revalidation, EPA RMP Update and Re-Submittal Requirements, OCA Update Tips, Managing the CalARP Program and Its Documentation, RMP Updates at Water Utilities, PHA Revalidation at Petrochemical Facilities

The workbooks and CDs of proceedings are still available; please contact Anna Olekszyk, SCSRA President (213-978-3686 or axo6991@lafd.lacity.org).



photos above and below: Participants in the 11 February Workshop.



#### Announcement

6 May 2004; Annual SCSRA Meeting— Risk Management 2004, Tom Bradley International Center, UCLA

Special Keynote Speaker: John Bresland, US Chemical Safety and Hazard Investigation Board Member

Featured sessions: Last-Minute Tips for Updating RMPs, School Site Risk Assessment, Air Toxics Health Risk Assessment, HARP—A New Tool, Indoor Air Risk from

Contaminated Sites

#### **Rocky Mountain Chapter**

Yvette Lowney, President

Efforts are being made to determine whether there is adequate interest to reinvigorate the Rocky Mountain Chapter of the Society for Risk Analysis. If you are interested in helping to get this chapter back on its feet, and/or have specific ideas regarding format or meeting locations, please contact Yvette W. Lowney at lowneyy@exponent.com.

#### Northern California Chapter

Ed Morales, President

The Northern California Chapter would like to welcome two new chapter officers as a result of the 2004 elections. Please welcome Winifred Curley, PhD, of EarthRisk, Inc. Wini has taken the position of treasurer. Also please welcome Ken Bogen, DrPH, of Lawrence Livermore National Laboratory. Ken has taken the position of councilor.

Our first symposium this year, titled "Indoor Air Quality in California: Policy and Science," was held in Oakland, California, on 11 March 2004. The symposium focused on issues related to Vapor Intrusion Risk Assessment. The panel included Richard Lam, PhD, of the California Office of Environmental Health Hazard Assessment, Ann Stacy of the California De-

partment of Toxic Substances Control, Alvin Greenberg, PhD, an independent consultant, and Mark Stelljes, PhD, of SLR International. The symposium was well received with approximately 55 people in attendance.

Thanks to the efforts of Greg Brorby, past president and councilor, the chapter has announced its first-ever Student Travel

Award Program. The program allows graduate and postdoctoral students a funding mechanism for attending the 2004 SRA Annual Meeting in December. Awards are given to students who submit technical abstracts or presentations to the chapter for consideration and may be selected based on technical merit and quality.



#### **Committees**

#### **Education Committee**

David M. Hassenzahl, Chair

The Education Committee is currently embarked on a project to develop Web-based educational resources for students, potential students, and instructors. One goal is to create a database that people seeking graduate programs in risk could use in order to

learn more about program options. A Webbased form is now available at the Risk Analysis Teaching and Learning (RATL) Web site (URL in the box

## Risk Analysis Teaching and Learning Web site http://www.unlv.edu/faculty/dmh/ratl

above and at the end of this column). If you manage or are associated with a graduate program with risk analysis content, please visit the site and fill out the form. The resulting database will provide detailed information to prospective students, including a number of searchable fields. In the future, we may use this material to rank graduate programs in a fashion similar to that developed by Ralph Keeney for decision-oriented graduate programs.

A second goal is to build Web-based capability to post curriculum materials for risk-oriented courses. A limited number of syllabi, problem sets, assignments, PowerPoint lectures, and other related materials are currently available for perusal and use at the RATL Web site. This collection would be greatly served by (1) additional materials and (2) peer review of existing materials. We encourage all instructors to submit their syllabi, and if you use materials from the site, please provide whatever feedback you can.

A future project of the Education Committee, with approval of the Society for Risk Analysis, will be to ask the National Science Foundation (NSF) to support a survey of risk-related graduate programs. One purpose would be to establish current capability to educate graduate students in risk-related programs.

A second would be to evaluate the demographics of academics in risk-related fields. The NSF may find such results useful in planning and designing future grant programs. Several committee members have indicated interest in carrying out this survey if support can be obtained.

Finally we would like to have some poster sessions, panel discussions, or even paper sessions on the pedagogy of risk at the

upcoming annual meeting. If you feel you have something to contribute, please consider submitting an abstract. Anyone inter-

ested in participating in the Education Committee and/or joining a panel to discuss risk education may contact committee Chair David M. Hassenzahl (david.hassenzahl@ccmail.nevada.edu); all are welcome.

The Risk Analysis Teaching and Learning Web site can be found at http://www.unlv.edu/faculty/dmh/ratl. We hope that this site will migrate to the SRA Web site soon.

#### **Chapters and Sections Committee**

Jonathan Wiener, Chair

As part of its ongoing efforts to make the Society for Risk Analysis (SRA) a more fully international organization, the SRA is now listing all of its worldwide chapters on the Chapters page of the SRA Web site, http://www.sra.org/about\_chapters.php. Newly listed are the existing SRA chapters in Kiev and London and the newly formed chapter in Australia. Additional international chapters will be added to the Web site as they are formed. SRA members interested in forming a new chapter should see the materials now available on the SRA Chapters and Sections Web page, http://www.sra.org/about\_chapters\_sections.php.



## **Advertisements**

#### **National PERISHIP Awards**

The Natural Hazards Center at the University of Colorado, in partnership with the Public Entity Risk Institute (PERI), with funding from the National Science Foundation (NSF) will award dissertation fellowships to support work in all aspects of natural and human-made hazards, risk, and disasters in all disciplines. The goal of the program is to foster the development of the next generation of interdisciplinary hazards scholars through wide-ranging contributions to the body of knowledge in hazards research. Up to 10 grants up to \$10,000 each will be awarded in 2004 to doctoral students to support their dissertation work on natural and human-made hazards, risk,

and disasters. The dissertation work may be in any relevant field of the natural and physical sciences, social and behavioral sciences, specialties in engineering, or interdisciplinary programs such as environmental studies. Applications are due 1 July 2004.

Complete program information, including deadlines, eligibility, and application information, is available at http://www.cudenver.edu/periship. Specific questions can be directed to Audre Hoffman, PERI, 11350 Random Hills Road, #210 Fairfax, VA 22030; 703-352-1846; email: periship@riskinstitute.org.



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#### Deadline for RISK newsletter Submissions

Information to be included in the **Third Quarter 2004** SRA RISK *newsletter*, to be mailed early August, should be sent to Mary Walchuk, RISK *newsletter* Managing Editor (115 Westwood Dr., Mankato, MN 56001; phone: 507-625-6142; fax: 507-625-1792; email: mwalchuk@hickorytech.net) no later than **21 June**.

## RISK newsletter and SRA Web Site Advertising Policy

Books, software, courses, and events may be advertised in the Society for Risk Analysis (SRA) RISK *newsletter* or on the SRA Web site at a cost of \$250 for up to 150 words. There is a charge of \$100 for each additional 50 words.

Ads may be placed both in the RISK *newsletter* and on the Web site for \$375 for 150 words and \$100 for each additional 50 words.

Employment opportunity ads (up to 200 words) are placed free of charge in the RISK *newsletter* and on the SRA Web site. Members of SRA may place, at no charge, an advertisement seeking employment for themselves as a benefit of SRA membership.

Camera-ready ads for the RISK newsletter are accepted at a cost of \$250 for a 3.25-inch-wide by 3-inch-high box. The height of a camera-ready ad may be increased beyond 3 inches at a cost of \$100 per inch.

The RISK *newsletter* is published four times a year. Submit advertisements to the Managing Editor, with billing instructions, by 30 December for the First Quarter issue (published early February), 30 March for the Second Quarter issue (early May), 30 June for the Third Quarter issue (early August), and 30 September for the Fourth Quarter issue (early November). Send to Mary Walchuk, Managing Editor, RISK *newsletter*, 115 Westwood Dr., Mankato, MN 56001; phone: 507-625-6142; fax: 507-625-1792; email: mwalchuk@hickorytech.net.

To place an employment ad on the Web site, fill out the online submittal form at www.sra.org/opptys.php. To place other ads on the Web site contact the SRA Webmaster at webmaster@sra.org. Ads placed on the Web site will usually appear several days after receipt. For additional information see the Web site at http://www.sra.org/opportunities\_submit.php.

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