



Safety Engineering & Risk Analysis Division



Newsletter

1st Quarter 2010

GENERAL DIVISION NEWS

IMECE 2010 Plans Progressing

Planning for IMECE 2010 in Vancouver, British Columbia, Canada is progressing. Many quality abstracts have been submitted and accepted for the SERAD sessions at IMECE 2010. The planned SERAD sessions include the following topics:

- General
- Safety Engineering
- Risk Analysis
- Reliability Methods
- Safety in Transportation
- Reliability in Design & Manufacturing

IMECE 2010 takes place from November 12 – November 18. As specific dates of the SERAD sessions are determined, they shall be communicated out to division membership via future newsletters.

We look forward to seeing you in Vancouver in November!

TECHNICAL CORNER

Encyclopedia of Quantitative Risk Analysis and Assessment

Article Submitted by: Ed Melnick*, Brian Everitt

*Professor of Statistics, Statistics Department, New York University

The need for a unifying authoritative reference work on risk assessment was first discussed by Ed Melnick and Brian Everitt (Editors-in-Chief) and John Wiley and Sons (publishers) in 2005. With much of the relevant literature on risk assessment being scattered in professional journals and books, and hence not readily accessible to those who would most profit from it, the Encyclopedia was suggested as a means to draw together diverse intellectual threads so that risk analysts in one area could gain from the experience and expertise of those in other disciplines. Corporate risk assessment, for example, might learn from military solutions; the work on monitoring for adverse health events might help to inform the early detection of unsafe automobiles; and portfolio management is very likely to be relevant to public policy investments.

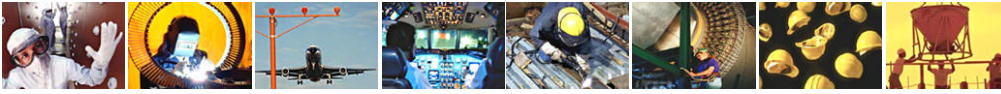
Quantitative risk assessment is an important growing component of the larger field of risk assessment that includes priority setting and the management of risk. The statistical theory within the Encyclopedia is designed to unify the study of risk by presenting the underpinnings of risk management within the context of the special features of particular areas. Applications from such diverse areas as drug safety, investment theory, public policy applications, transportation safety, public perception of risk, epidemiological risk, national defense and security, critical infrastructure, and program management are included to illustrate this unification.

Further, the need to understand the risks of an activity has spawned new classes of mathematical techniques for hazard identification, dose–response assessment, exposure assessment, and risk characterization. These concepts are discussed in the Encyclopedia and illustrated with applications that require a more general description of variability and uncertainty inherent in the risk identification process than those found in the classical statistical literature.

Editorial planning of the Encyclopedia began with the identification of 10 major areas that have contributed to the literature of developing strategies for studying risk. For each area, a section editor was recruited with known expertise in his or her field. These categories, and the section editors, are:

1. Risk management (Tony Cox, USA)
2. Environmental risk (Walt Piegorsch, USA)
3. Insurance/actuarial risk (Michel Denuit, Belgium)
4. Financial/credit risk (Ngai Chan, Hong Kong)
5. Toxic substances/chemical risk (Dennis Paustenbach and Jennifer Roberts, USA)
6. Reliability (Frank Coolen and Leslie Walls, UK)
7. Bayesian methods/decision analysis (Simon French, UK)
8. Clinical risk (Susan Sereika, USA)
9. Epidemiology/public health (Susan Sereika, USA)
10. Homeland security (Edward Melnick, USA)

Once recruited, editors-in-chief and section editors developed a list of entries within each topic, and from there the section editors identified and approached approximately 400 potential authors. The entries were chosen to provide a broad coverage of methods and applications of risk quantification and analysis. Some entries were chosen to cover material at a basic level, while others were at a sophisticated mathematical level. The



goal was to make the Encyclopedia meet the needs of a wide readership with articles that differed in technical level and mathematical content.

Once the first draft of manuscripts was received, the editors-in-chief read and made suggestions to the section editors. The section editors then worked with the authors as supporters and editors. Once the section editors accepted the final version of the manuscripts, the editors-in-chief set up the cross-referencing and compiled all the articles into the Encyclopedia.

With the editors-in-chief on different sides of the Atlantic, and section editors and authors spread all over the world, this Encyclopedia could not have been completed without the all-reaching power of the Internet. Thanks to this, and the timely efforts of the 360 contributors, the project kept to schedule throughout development and published in print format in July 2008. An online edition has subsequently been launched on Wiley InterScience. Catalogue information for these editions can be found respectively at:

<http://www.wiley.com/WileyCDA/WileyTitle/productCd-0470035498.html>

<http://mrw.interscience.wiley.com/emrw/9780470061596/home/>

Envision your article here next issue!!

For future issues, we want to hear from you! Please submit articles of technical interest to the editors for consideration for publication in this section. These articles can be examples of applications of Safety Engineering, Risk Assessment, Reliability engineering techniques in your field, or can be examples of novel approaches in these areas.

Submit your ideas and articles to our editor, Ward Baun at ward.baun@utcpower.com

SERAD VOLUNTEER OPPORTUNITIES

SERAD Newsletter: Assistance with all aspects of the development and publication of this newsletter. This may include review of technical articles submitted, interviewing of experts, editing articles, concept development. If interested, contact Ward Baun at (860) 727-7234 or at ward.baun@utcpower.com

SERAD Awards Dinner Committee: Organization of the annual SERAD Awards dinner, typically held at ASME IMECE in November. Duties would include finding a guest speaker, arranging for a banquet room, selection of dinner menu, sending invitations. Contact any of the SERAD Executive Committee members listed in the Contacts section of this newsletter.

SERAD Technical Paper Reviewers: Peer review technical papers for SERAD sessions at future conferences. There are immediate needs for reviewers for abstracts / papers submitted for IMECE 2010, from March through July 2010. If you are interested, please contact one of the topic chairs listed below:

SERAD Technical Chair: W. R. (Bill) Byrd, PE
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Safety Engineering: James Harris
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SERAD Website Maintenance: Assistance with all aspects of maintaining the SERAD website, updating content for the website. Contact any of the SERAD Executive Committee members listed in the Contacts section of this newsletter.

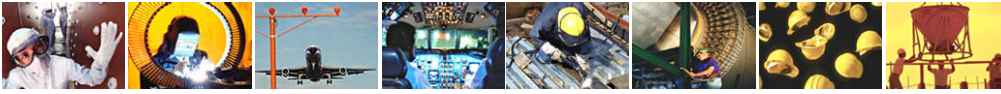
REMINDER

Remember that one of the benefits of being a SERAD member is the opportunity to purchase a subscription to the Elsevier journal, *Reliability Engineering and System Safety*. Normally not available to individuals, as a SERAD member, you can purchase a year-long (12 issue) subscription to this valuable journal for \$181. See the Important Website Links section below for a hyperlink to the order form on the SERAD website.

IMPORTANT WEBSITE LINKS

IMECE 2010:
<http://www.asmeconferences.org/Congress2010/>

Elsevier Journal, "Reliability Engineering and System Safety" SERAD Member Order Form:
<http://files.asme.org/Divisions/SERAD/22426.pdf>



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