

Developing System Safety Engineers for the Future

34th International System Safety Conference

The 2016 ISSC took place in Orlando, Florida where, in addition to tutorials, roundtables and paper presentations (see page 45), those in attendance networked with their fellow professionals from around the world to share their ideas, find solutions to challenges, and get better prepared for engineering safety for the future.



Photos by Megan Nix

2016 ISSC Speakers

Keynote Speaker — Kathy Fox



Kathy Fox, chair of the Transportation Safety Board of Canada since 2014, started in air traffic control in 1974, and has consistently moved into upper levels of transportation safety throughout her career. She has been an air traffic control trainer, vice president of operations for NAV CANADA, and has flown more than 5,000 hours. She was also inducted into Canada's Aviation Hall of Fame this year.

Kathy Fox with ISSC President Rod Simmons



Questions were encouraged after each speaker's presentation, helping to spread the knowledge each brought to the Conference.

Sponsor/Exhibitor Luncheon Speaker — Paul W. Hanley



Paul Hanley with ISSC Conference Chair Gary Braman



Paul Hanley currently serves as the Deputy Assistant Secretary of the Navy (Safety) in the office of the Assistant Secretary of the Navy for Energy, Installations and Environment. Hanley has served in a number of safety-focused roles throughout his career in both the private and public sector. He is currently responsible for policy, oversight, advocacy and strategic planning for the Department of the Navy's safety and occupational health program, acquisition safety, fire protection and emergency services.

International Luncheon Speaker — Malcolm Jones



Malcom Jones with International Committee Chair Maury Hill



Malcolm Jones, who holds a doctorate in solid state physics, has worked at the U.K.'s Atomic Weapons Establishment (AWE) since 1967, serving in multiple roles for the U.K.'s nuclear warhead program. Currently he holds the position of Scientific Adviser to AWE's Chief Scientist and to AWE's Chief Engineer for Product (warhead) Assurance.

2016 ISSC Awards

President's Award



Charles Hoes, left, with ISSS President Rod Simmons

Professional Development Award



Mary Ellen Caro (presented by Jeff Brewer)

Best Paper Award



Engineer of the Year

Marge Jones (not pictured)

"Forensic Attacks Analysis and the Cyber Security of Safety-Critical Industrial Control Systems" — Chris W. Johnson DPhil, School of Computing Science, University of Glasgow, Glasgow, U.K. Rob Harkness, EDF, GSO Business Park, East Kilbride, U.K. Maria Evangelopoulou, School of Computing Science, University of Glasgow, Glasgow, U.K.

Accepting the award is Chris Johnson, right (presented by Technical Program Chair John Hewitt)

Chapter of the Year



Tennessee Valley Chapter



Dave West, left, with ISSS President Rod Simmons

Small Chapter of the Year



Singapore Chapter



Seet Ting Siow, left, with ISSS President Rod Simmons

**Fellow Members
of the International System Safety Society**



Gary Braman (with Russ Mitchell, left)



Saralyn Dwyer

**Senior Members
of the International System Safety Society**



Michael McKelvey



Clifford Parizo

System Safety Pathfinders



Clif Ericson (with ISSC President Rod Simmons, left)



George Peters

Newcomers to the Field, and the ISSC, Share Their Experiences



Kirsten Schnappauf

At the 2016 ISSC, *Journal of System Safety* sat down with two first-time attendees of the ISSC, who provided their impressions of the Conference.

Kirsten Schnappauf is new to system safety but has considerable experience as a lead structural engineer at Sikorsky Aircraft. She holds a bachelor of science in aerospace engineering and a master of science in aeronautical science (aviation safety specialty) from Embry-Riddle Aeronautical University.

“It was an eye-opening experience for someone with minimal exposure to system safety,” she said about her experience at the Conference, “and very interesting to observe the commonalities and differences among different governing agencies and industries.”

What did she learn at the Conference? “I learned that I have a lot more to learn,” she said. “There are numerous different approaches and standards beyond MIL-STD-882D for approaching system safety, and the guidance varies significantly from agency to agency.”

The other first-time attendee was Erin Scinto who is also at Sikorsky and has worked for a number of years in various aspects of environmental health and safety. She is now a system safety engineer for the VH-92A medium-lift helicopter.

“To sum it up, it was a great experience,” she said. “I would absolutely recommend attending to anyone in the field. There seemed to be something for experts as well as newcomers to the industry.”

Erin holds a bachelor of science in civil engineering from the University of New Hampshire and a master of science in environmental engineering from the Worcester Polytechnic Institute.

When asked what she learned, she said that, “The same obstacles are often faced in different system safety industries. Also, the different ways to generate Safety Cases. All of the tutorials and paper presentations that I attended were applicable to my field in one way or another. I am a newcomer to this industry, so I was trying to take in as much information as I possibly could.”



Erin Scinto

2016 ISSC Classes



The ISSC offers attendees the opportunity to share ideas and techniques, work out real-world challenges they've encountered and prepare for future developments, both in structured classes and one-on-one conversations.



2016 ISSC Tutorials, Panels and Paper Presentations

Tutorials

- System Safety Part 1: Hands-On System Safety Basics
- System Safety Part 2: Practical Generation of Safety Cases With the Help of GSN
- System Safety Part 3: Cyber Safety and Security
- Hazard Tracking System for a System-of-Systems
- Understanding Risk Management for the Medical Device Industry
- Threat Management for the Cyber Security of Safety-Critical Systems
- New Engineer Focus – System Safety Process Applied to High Voltage Automotive Propulsion System
- Introduction to Field-Programmable Gate Array (FPGA) Technology
- Developing Electronic Systems for Safety-Critical Applications
- Investigating Process for Space Mishaps
- Introduction to Data Coupling and Control Coupling
- System Safety Engineering and Management: An Overview
- MIL-STD-882E Applies to All Your Software — Not Just the Code You Write
- Understanding Functional Safety Management Methods Evolution for Tomorrow's Civil and Military Aircraft Development and Safety Assessment
- Responsibilities and Potential Liability of System Safety Engineers
- Safety and Human Performance
- Methodology to Assess the Safety Risks for Software Intensive Systems
- Protecting Personnel from Harmful Lasers

Panels/Roundtables

- The Most Pressing Issues Facing System Safety
- Reestablishing Engineering and Systems as the Fundamental Precepts of the System Safety Profession and the ISSS
- Developing Future System Safety Engineers through STEM Outreach
- Developing a System Safety Expert — Perceptions from Industry, Academia and Government
- G-48 Meeting

Paper Presentations

- Safety and Liability Risks for Government Contractors Entering Commercial Markets
- Safety Engineering Practice and Experience on Cross Integration of Interoperable Safety Critical Systems Developed by Multiple Suppliers
- A Comprehensive Assessment of System Safety Degree Programs in the United States
- Use of Agile Practices when Developing Safety-Critical Software
- System Safety Level of Rigor: Software Versus Hardware
- Mission Reliability Assessment for Aircraft Based on Flight Parameters

- Hard Landing Prediction with Improved PSO Based-BP Neural Network
- Product Safety Assessment Based on Bayesian Networks and Competing Risk Model with Multiple Mechanisms
- Hazard Analysis for Facilities and Process Safety
- A Multi-Perspective Hazard Identification Approach for Complex System-of-Systems
- Enabling an Error Prevention Collective Corrective Action Process by Performing Risk Assessment on Historical Data
- Activity-Based Root Cause Analysis
- Forensic Attacks Analysis and the Cyber Security of Safety-Critical Industrial Control Systems
- Long-Range Safety Forecast — Partly Cloudy
- You Outsource the Service but Not the Risk: Supply Chain Risk Management for the Cyber Security of Safety Critical Systems
- Health and Safety Assessment and Prediction for Motors Based on an Improved SVM Model
- The Application of Pattern Recognition in Landing Safety Warning with QAR Data
- The Challenges of Being a Safety Engineer
- Taking System Safety Back to the Future
- Challenges of Applying Conventional Software System Safety to Agile Software Development Programs
- Model-Based Development and Software System Safety
- Utilizing Simulated Testing to Determine Probability of Failures in Safety-Critical Systems
- Systematic Approach to Perform Safety Assessment on Vessel Platforms
- Defining Safety Requirements for Human-Machine Interactions
- Literal and Conservative Application of MIL-STD-882E in Space Launch and Satellite Procurement
- Architecting a Safety Case for UAS Flight Operations
- Modeling and Analysis of Mishap Data Using Artificial Neural Networks
- Effect of Dormant Failures on Safety Barriers
- Particular Risk Analyses Studies of a MALE-Class UAV and Lessons Learned
- The Movement of Inorganic Cadmium Through the Environment: Dangerous Goods II
- Organisational Problems — Potential Causes — Unintentional Consequences
- How to Create a Sound Risk Management Process That is Compliant with ISO 14971
- Role of Regulators in Safeguarding the Interface between Autonomous Systems and the General Public
- How Complex Systems Fail-II: Bounding the “Black Swan” Probability
- How Complex Systems Fail-III: The System Risk Surface
- The Human Factors Case Concept and Its Value for the Safety Case
- Unique Hazards Found in Laser Weapon Systems and Potential Mitigations
- Tools and Techniques for Safety-Specific Software Testing
- Don't Turn a Blind Eye to Safety: Protecting Personnel from Harmful Lasers

2016 ISSC Outing

The off-site event for the 2016 ISSC took place at SeaWorld Orlando on Wednesday, August 10. Attendees were treated to a Caribbean buffet, Caribbean music and, in addition to sea life, were visited by some avians and mammals, as well.



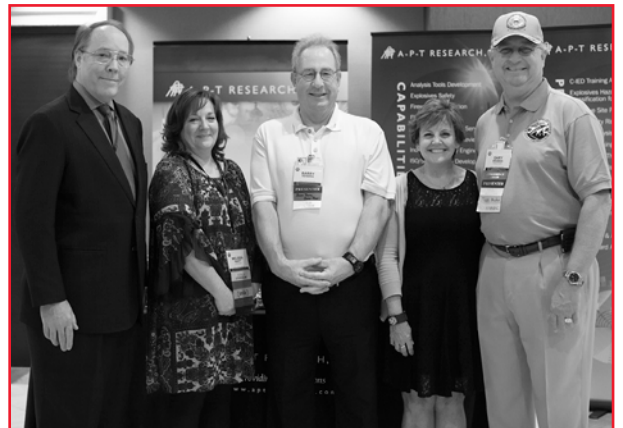
Thanks to the 2016 ISSC Sponsors and Exhibitors

Gold Sponsors

SIKORSKY
A LOCKHEED MARTIN COMPANY



 **A-P-T RESEARCH, INC.**



Exhibitors

isograph
●●●●

LDR
Software Technology



A. JAMES CLARK
SCHOOL OF ENGINEERING

