



NEWSLETTER

Vol. 5: Issue No. 1

March 2007



PAST EVENTS

Joint SPIN-INCOSE-LA Speaker Meeting
March 2, 2007

Northrop Grumman Space Technology
Redondo Beach, CA 90278

“Risk Aversion and Other Obstacles to Mission Success”

Scott Jackson
University of Southern California

UPCOMING EVENTS

Tuesday, March 27 Speaker Meeting

“Political Factors Impacting the Space Shuttle Columbia Accident”

Ricardo Arteaga
Northrop Grumman

Location
The Aerospace Corporation
El Segundo, CA 90245

Networking 5:30 pm
Presentation 6:30 pm

Tuesday, April 24 Speaker Meeting

“How Systems Engineering can Improve a Risk Management Process”

Dr. Edmund Conrow
Risk-Services.com, Consultancy

Location
The Aerospace Corporation
El Segundo, CA 90245

Networking 5:30 pm
Presentation 6:30 pm

2007 INCOSE International Symposium

Location & Date
Town and Country Resort
San Diego, CA
June 24-28, 2007

Letter from the President ***Jim Manson***



I would like to take this opportunity to introduce myself in this month's newsletter. My name is Jim Manson and I'm currently working as a Systems Engineering Manager for the C-17 Program of the Integrated Defense Systems Precision Engagement Mobility Systems of The Boeing Company. I started my career working for the Navy Gage and Standards Center, in Pomona California, as a Gage Designer while I was working on my Mechanical Engineering Degree. I've been with Boeing for over 18 years and for the past 30 years I've had the opportunity to work as a Systems, Project Management, Structural, Manufacturing, Tool, Facilities, and Design Engineer. At Boeing, I worked on the MD-80/90/11, 717 Programs in Long Beach California, and 747/67 Programs in Seattle Washington. I also worked for Fennix and Scisson, Baker-Hughes International, and General Dynamics. I received my BSME, from Cal Poly Pomona and Project Management Professional Certificate from PMI. But most of all, my main passion is my family. I met my wife Doris while I was going to school at Cal Poly, and have been married to Doris for almost 29 years and have two daughters, Rachel and Marissa.

My first exposure to Systems Engineering occurred while I was managing affordability projects for the MD-90/11 Programs in 1995. This is when I first met Scott Jackson, my systems engineering mentor. Scott worked with the Integrated Product Development organization implementing systems engineering processes in the execution of affordability projects. That was when my perspective for managing projects changed to managing systems development through the execution of systems engineering processes. In 2002, I joined the C-17 Systems Engineering Integrated Product Team and again I had the opportunity to work with Scott.

Although I had performed various systems engineering processes in my previous jobs, I was never responsible for executing all of the systems engineering processes on any one project. I needed to get up to speed, so I joined the Los Angeles Chapter of INCOSE in 2002 as suggested by Scott. Professionally, INCOSE provided access to a vast amount of systems engineering information. I started by attending monthly speaker meetings and learned more about risk management, requirements management, trade studies, and many other subjects. In addition, I attended 8 hour tutorials on “The Art of Systems Architecting”, “Knowledge Engineering”, “The Art and Science of Systems

Engineering”, and many other topics. Other sources of systems engineering information are available to professionals through the INCOSE Organization and LA Chapter Websites, INCOSE INSIGHT magazine, and the Chapter Newsletter. In addition to speaker meetings and tutorials, I attended and volunteered for the mini-conferences organized by the LA Chapter.

INCOSE provided the environment for professionals to develop as a systems engineer. The key to the success of this environment is the dedication of its volunteers to facilitate the transfer of systems engineering knowledge. I’m fortunate to be member of the LA Chapter volunteers who are dedicated to the goals of the chapter and contribute their personal time to support the activities of its members.

The chapter holds monthly speaker meetings, and conducted a mini-conference in January at the Loyola Marymount University. The chapter will be working with University of Southern California (USC) and manage the Conference on Systems Engineering Research (CSER) on April 4th and 5th of 2008.

The LA Chapter is the 4th largest chapter, and last year the LA Chapter won the Gold Chapter Award at the International Symposium in Orlando, Florida. I want to continue this level of excellence and I’m interested in your ideas on how the chapter can more effectively meet your needs. I plan to request that the chapter conduct a survey this year to obtain your ideas.

Previous surveys have indicated that networking was high on your list needs from the chapter. The chapter and the organization offer networking opportunities at monthly speaker meetings, tutorials, mini-conferences, and symposiums. The chapter also provided networking opportunities through a joint SPIN and INCOSE meeting conducted on March 2, 2007. The chapter is looking into other joint professional society meetings for this year. Another networking opportunity supported by the chapter is the upcoming 2007 INCOSE International Symposium in San Diego on June 24, 2007.

Members have noted that they didn’t want to travel long distances to attend after hours speaker meetings or tutorials. We have rotated the meetings and tutorials to different locations to help alleviate this problem for its members. In addition, the chapter successfully kicked off webcasting for remote sites at the last speaker meeting held on February 20, 2007. We are looking into expanding this opportunity to reach members locally, nationally, or even internationally.

Don’t wait for the survey if you have any ideas or questions for the chapter. Please email me or any of the board members noted in the back of this newsletter. The chapter needs volunteers to support the activities that are planned or in the works, so please contact us if you are interested. I look forward to serving as the President and hope to help provide the environment to meet your systems engineering needs.

INCOSE-LA 2007 Election Results

INCOSE-LA is pleased to announce the results of the recent elections and would like to take this opportunity to congratulate

the newly elected Officers and Directors. The newly elected members of the INCOSE-LA Board of Directors are as follows..

President: James Manson
Vice-President: John David Boyd
Secretary: Anna Warner
Treasurer: Marsha Weiskopf
Programs Director: Dr. Jack Elson
Membership Director: Paul Cudney

The exceptional slate of candidates reflects the continued growth of INCOSE-LA and the tremendous dedication of its members. Sincere thanks to those who are willing to make such a significant commitment to serve and lead our organization, and thank you to all of the INCOSE members who took the time to vote.

Note: The position of Tutorials/Education Chair is currently vacant. Interested persons should contact the President or Past President at the email addresses on the last page.

INCOSE-LA Members are Welcome at USC Systems Engineering Lectures

As a pilot project to reflect the close cooperation between INCOSE-LA and USC in the Conference on Systems Engineering Research (CSER) in 2004 and 2006 and soon to be in 2008, INCOSE-LA members are invited to hear guest lectures in the class on Systems Engineering Theory and Practice by lecturer Scott Jackson this spring. All you have to do is to contact Scott on jackessone@cox.net and find out whether there is room in the class for you to attend. His classes are on Wednesday nights from 6:30 pm to 9:10 pm in Olin Hall of Engineering 100C.

The guest lectures this semester are as follows:

- Design for Reliability, Maintainability – Ted Weber, Boeing Technical Fellow, Wednesday April 4, 6:30 pm to 7:45 pm.
- Design for Affordability, Design to Cost and Logistics – Dr. Karen Miller, lecturer in Systems Engineering, Loyola Marymount University, Wednesday April 18, 6:30 pm to 9:10 pm.

Design for Six Sigma – Bob Yazdi, Boeing Black Belt in Six Sigma, Wednesday April 11, 6:30 pm to 7:45 pm. You are welcome to stay for a discussion of System Resilience.

Directions: Get on the 110 (Harbor Fwy either north or south). Get off at Exposition and go west to the end of the campus at Vermont. Turn right on Vermont and go to 36th Street where you will see gate 6 on the right. Turn into gate 6 and keep to the left where you will give the guard \$7. Enter parking structure PA on the right and park anywhere that is not reserved. Cross McClintock on foot to the east (away from Vermont). Enter the Olin Hall of Engineering (OHE) patio and look for the small 100 building. Find 100C on the left and sit down.

This pilot program is only open this semester for this course. If it is popular, it may be expanded to other courses next semester.

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INCOSE International Workshop Report

Scott Jackson
University of Southern California

Technical Leadership Team

Under the leadership of Samantha Brown, the Technical Leadership Team (TLT) continues to gain momentum. New Assistant Directors of Public Interest (e.g., natural disasters, anti-terrorism, etc.) Applications and Information Systems have recently been named. All technical working groups report to the TLT.

INCOSE Fellows

INCOSE Fellows represent the top 1% of INCOSE membership in terms of providing expertise to systems engineering in three categories: teachers, practitioners and researchers. Being a Fellow is not just an honor; the Fellows have to do work. For example, in each edition of Insight you can read the thoughts of a Fellow on a broad range of topics. The column is called Fellows' Insight. You may have read the recent Fellows edition of Insight on the themes of The Intellectual Content of Systems Engineering and The Fellows' View of the Systems Engineering Vision. In case you were wondering, there are three female Fellows.

Resilient Systems Working Group

There were 16 new members at the inaugural meeting of the new Resilient Systems Working Group (RSWG). System resilience is the ability of organizational, hardware and software systems to mitigate the severity and likelihood of failures or losses, to adapt to changing conditions, and to respond appropriately after the fact. In the aerospace industry the former part is sometimes called mission assurance. The RSWBG is a node in the international Resilience Engineering Network, a consortium of universities and other organizations studying this subject. The RSWG is also a part of the Public Interest Applications segment. The group has decided that their initial products will be a lexicon and an expanded bibliography. Anyone interested in this group should contact Scott Jackson at jackessone@cox.net.

Joint SPIN-INCOSE-LA Meeting (March 2)

**Southern California SPIN-INCOSE-LA Meeting
Software Process Improvement Network (SPIN)**

***Risk Aversion and Other Obstacles to
Mission Success***

Scott Jackson
University of Southern California

Location

Northrop Grumman Space Technology
Redondo Beach, CA 90278

ABSTRACT: There is abundant evidence that obstacles to mission success exist that have their origin in organizational psychology. Key among these is an aversion to recognizing or mitigating risk. Others range from managerial and organizational issues, contractual boundaries to the pressures of cost and schedule. To overcome these obstacles breakthroughs in cultural change are required. Some people may believe that cultural change can be achieved by lectures, intensive training or simply by good engineering processes. Experts in the field of organizational development, management and leadership suggest, however, that these methods are not sufficient. While many methods may have some effectiveness, communities of practice are suggested as the most promising approach. It is suggested that the interdisciplinary nature of systems engineering may take on new meaning when such diverse fields as organizational psychology are employed to enhance the success of a system.

Note: Dr. Katherine Erlick and Joann Gutierrez of Boeing were co-authors of the original paper "The Science of Organizational Psychology Applied to Mission Assurance" on which this presentation is based. That paper was presented to the Conference on Systems Engineering Research (CSER) in Los Angeles in 2006.

BIOGRAPHY:



Scott Jackson is a Lecturer in Systems Engineering in the Systems Architecture and Engineering program at the University of Southern California (USC). He is the focal point for the USC node of the Resilience Engineering Network, an international consortium of universities and other organizations doing research on system resilience. Scott is also a Principal in the USC Center for Systems and Software Engineering.

Scott is an INCOSE Fellow and the Assistant Director for Public Interest Applications, concerned with natural and human-made catastrophes and anti-terrorism. He is also the Chair of the Resilient Systems Working Group, another node in the Resilience Engineering Network. He has published many papers on the subject of system resilience and the related areas of organizational safety and mission assurance.

Scott is the author of the book *Systems Engineering for Commercial Aircraft*, published by Ashgate Publishing Limited (UK) in 1997. This book addresses the issue of system resilience in the context of commercial aircraft. Formerly at Boeing, Scott worked on both commercial and military aircraft. He was an Associate Technical Fellow in Systems Engineering at Boeing. He was elected a Distinguished Engineer by the Orange County Engineering Council in 2006. Scott is also a consultant in systems engineering and has given tutorials and lectures on systems engineering. He is a Certified Systems Engineering Professional (CSEP).

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INCOSE-LA Mini-Conference Report

Dr. Iwona A. Palusinski

The Aerospace Corporation

On Saturday Jan 20th, 2007, Loyola Marymount University was the site of a dynamic INCOSE-LA Mini-Conference that focused on program executability. Dr. Jack Elson, Associate Professor at National University, and master of ceremonies, Dr. Bill Hatton, Director Space-Based Surveillance Division at The Aerospace Corporation, guided the information-filled conference. Keynote Speaker Neil Siegel, Sector Vice-President, Technology at Northrop Grumman Missions Systems set the tone of the conference. He outlined critical factors such as proactive management, minimal serialization of workplans, and incorporation of the sociology of a group that lead to success. Risk, resilience, and success through systems engineering were discussed in six follow-on presentations. The conference concluded with a lively panel discussion that tackled challenging issues facing the space and systems engineering communities as well as questions from the audience. The panel consisted of government personnel and contractors and was monitored by Roz Lewis, Director, Cost and Requirements Department at The Aerospace Corporation.

Attendees of the conference became aware of the dangers of not institutionalizing good practices in organizations. Without institutionalization, lessons learned become only lessons logged and problems are doomed to be repeated. This is especially critical for space-borne systems because space systems have long lifetimes from design to operation and usually outlive the careers of several engineers.

During the panel discussion, Lt Col James Horejsi, Chief Engineer and Director of Engineering and Architectures, Space and Missile Systems Center, LAAFB addressed the challenge of requirements creep. He noted that contracts are structured to select contractors and not necessarily execute programs. Therefore requirements creep exists and reduces the ability to meet mission objectives in a timely fashion. Both government and contractors must collaborate to achieve program executability.

In addition to expanding their knowledge in the sessions, attendees were able to network between sessions and during the lunch break. If you missed this conference, make sure you attend the next one!

DISCLAIMER: The opinions and conclusions expressed in this summary report for the INCOSE newsletter are those of the author. They do not reflect the official position of The Aerospace Corporation.

NOTE: As recognition for their time and contribution, Jack Elson presented Certificates of Appreciation to all panelists. The planning committee was also rewarded for their contributions to the mini-conference.



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Tuesday, March 27 Speaker Meeting

Political Factors Impacting the Space Shuttle Columbia Accident

*Ricardo Arteaga
Northrop Grumman*

**The Aerospace Corporation
El Segundo, CA 90245**

**Networking 5:30 pm
Speaker 6:30 pm**

**Members Free
Guests \$10.00**

ABSTRACT: This presentation provides an analysis of the Space Shuttle Columbia's Accident in terms of the political "facts-of-life" concepts employed in Engineering Management of Government Funded Programs. The analysis focuses on the political factors as well as the engineering aspects that contributed to the loss of the Space Shuttle Columbia on Feb 1, 2003. The Columbia Accident Investigation Report is extraordinarily rich in details and analysis, and forms the basis of the lessons-learned, provided in this research paper.

The Space Shuttle program was facing extreme pressures to meet unrealistic schedules with funding cuts of more than 40%. The motto of the new Space Shuttle's administration was the catchy slogan- "faster, better, cheaper."¹ The Space Shuttle program's organizational culture was well-established, from the glory of an earlier time, with a "can do attitude" which promulgated from NASA's history in the early 80's. This in turn set the stage for compromises and changing priorities over the life of the Space Shuttle program. The funding and schedule priorities forced an already reduced workforce to make compromises in safety and quality in order to meet the deadlines. The Space Shuttle's program management was focused on the critical-path schedule to meet the Space Station U.S. Core Complete and accepted more risk, in order to meet the deadline of February 19 2004. The agency's commitment to meeting the critical-path schedule may have influence the day-to-day decisions leading up to the launch of STS-107, the final flight of the Shuttle Columbia.

When a program spends less money and accelerates the schedule beyond the current limited resources, a small amount of residual risk is introduced. This element of risk was routine for the space shuttle program. The risk of foam strikes from debris were well known, and therefore an accepted risk for the Space Shuttle program. Complacency created an illusion of routine and low risk over the years of Space Shuttle flights. The residual risks added up until managers were no longer aware of the program risk, and were, in fact gambling. NASA was progressively accepting more and more risk in order to maintain the critical-path schedule. This risk was no longer seen as a threat to the Space Shuttle, only a threat to the launch schedule. The rationale for con-

tinuing to fly was based, on accepted risk from previous flights where the foam strikes had been observed. The political factors of schedule pressures changed the organizational norms in effect from asking; is this condition safe to flying, to proving that it's not safe to fly! In order to prove that it's not safe to fly is considerably more difficult to prove. Technical problems became political problems. The foam impacted the Columbia's leading-edge of the left wing at perfect angle to breach the panel on take-off. In the final attempt to prove, that damage from debris had occurred to the Orbiter in-flight, the three requests for on-orbit satellite imagery were denied by the Shuttle program management. In summary, the political dynamics influencing NASA's management and organizational system were just as important as the foam in contributing to the loss of the Shuttle Columbia



BIOGRAPHY: Ricardo Arteaga has over 25 years of experience in the field of Government and Aerospace engineering development programs, including the design and integration of GPS/INS navigation systems on the F/A-22 and F117A stealth aircrafts. Mr. Arteaga is a graduate student at the University of Southern California and has been awarded two Master of Science degrees in Engineering and continues post graduate work toward a PhD at USC.

RESERVATIONS: You MUST RSVP to attend, NO EXCEPTIONS. RSVP via website (at the bottom of the event web page) at (www.incose-la.org) or to Paul Su, registration@incose-la.org, 310-336-2602) by March 23 if you are a US citizen or Resident Alien, or by March 20 if you are NOT a US citizen.

--Provide the following information: name, affiliation, citizenship, email address, and phone number.

--U.S. Citizens bring a picture ID (Driver's License).

--Resident Alien bring your Valid Resident Alien I.D. Card

DIRECTIONS TO THE AEROSPACE CORPORATION

<http://www.aero.org/corporation/locations/elsegundo.html>

From the southbound San Diego Freeway (Interstate 405):

Exit at El Segundo Blvd (La Cienega Blvd) (just past the I-105 interchange).

Turn left at the bottom of the ramp onto La Cienega.

At El Segundo Blvd, turn right.

Turn left on Douglas St.

Turn left into Aerospace

From the northbound San Diego Freeway (Interstate 405):

Exit at El Segundo Blvd. (just before the I-105 interchange).

Turn left at the bottom of the ramp onto El Segundo Blvd.

Turn left on Douglas St.

Turn left into Aerospace

From the westbound Century Freeway (Interstate 105):

Take the southbound I-405 exit.

Stay in the right lane.

Take El Segundo Blvd. exit (exit is before ramp merges with I-405).

Turn left at the bottom of the ramp onto El Segundo Blvd.

Turn left on Douglas St.

Turn left into Aerospace

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From the Douglas Street gate, continue straight (east) past the building on your right, turn right and park [before the fence and new parking structure which is being built and where we used to park]. Then walk east along the same road you drove in on to the end of the sidewalk and turn left to the south lobby.

Tuesday, April 24 Speaker Meeting

How Systems Engineers Can Improve A Risk Management Process

Dr. Edmund H. Conrow, CMC, CPCM, CRM, PMP
Risk-Services.com, Consultancy

The Aerospace Corporation
El Segundo, CA 90245

Networking 5:30 pm
Speaker 6:30 pm

Members Free
Guests \$10.00

ABSTRACT: Systems engineers are often assigned to help develop, implement, and/or maintain a program's risk management process. Existing processes and associated documentation, including command media, often contain errors of both inclusion and omission. Similarly, risk tools may adversely "drive" a risk management process rather than enabling it. Most importantly, a program's human and organizational behavioral culture may preclude successful risk management implementation. Dr. Conrow's presentation provides insights to help detect potential defects associated with risk management processes and risk tools, plus recommendations on how to correct these concerns. He also provides recommendations on how systems engineers can help project management better implement the risk management process on a given program



BIOGRAPHY: Dr. Conrow is a risk management and project management consultant to government and industry with 30 years experience on hardware-intensive, software-intensive, and mixed projects with life cycle dollar ranges from several million dollars to more than \$100 billion dollars. He is credited with helping develop many of DoD's best practices on risk management as a technical advisor to the Office of the Secretary of Defense Risk Management Working Group and other government organizations, and has served as a risk manager and mentor to risk managers more than 25 times where he was responsible for implementing and making risk management work every day on a wide variety of programs.

He is an Associate Fellow and Life Member of the American Institute of Aeronautics and Astronautics (AIAA), Senior Member of the Institute of Electrical and Electronics Engineers (IEEE), and a member of INCOSE. He is a Certified Manage-

ment Consultant (Institute of Management Consultants), a Certified Professional Consultant to Management (National Bureau of Certified Consultants); and is Certified in Risk Management (International Institute of Professional Education and Research), and a Project Management Professional (Project Management Institute).

Dr. Conrow is the author of *Effective Risk Management: Some Keys to Success*, Second Edition, AIAA (2003) which was reviewed in the January 2004 issue of INCOSE INSIGHT; the project risk management chapter in the Ninth, Eighth, and Seventh Editions of Harold Kerzner's best selling *Project Management: A Systems Approach to Planning, Scheduling, and Controlling*; and is widely published in journals and conferences. Dr. Conrow is the primary author of the project risk management chapter in the U. S. Department of Defense Extension to: *A Guide to the Project Management Body of Knowledge (PMBOK® Guide)*, Defense Acquisition University, First Edition, Version 1.0, 2003. He has been a contributor and reviewer to risk management processes for a number of organizations and professional societies including IEEE and PMI. He holds a BSNE and MS in nuclear engineering, M. Phil. in policy analysis, Ph.D. in general engineering and Ph.D. in policy analysis.

RESERVATIONS: You MUST RSVP to attend, NO EXCEPTIONS. RSVP via website (at the bottom of the event web page) at (www.incose-la.org) or to Paul Su, registration@incose-la.org, 310-336-2602) by April 20 if you are a US citizen or Resident Alien, or by April 17 if you are NOT a US citizen.

--Provide the following information: name, affiliation, citizenship, email address, and phone number.

--U.S. Citizens bring a picture ID (Driver's License).

--Resident Alien bring your Valid Resident Alien I.D. Card

DIRECTIONS TO THE AEROSPACE CORPORATION

See previous article.

2007 INCOSE International Symposium

"Systems Engineering: Key to Intelligent Enterprises"

Town and Country Resort
San Diego, California, USA

June 24-28, 2007

The seventeenth International Symposium of the International Council on Systems Engineering will be held 24-28 June 2007 at the [Town and Country Resort](#) in San Diego, California, USA. The 2007 theme *Systems Engineering: Key to Intelligent Enterprises* highlights the dramatic expansion of opportunities available to those who learn to see and treat enterprises as systems and systems as enterprises.

For more information, please visit www.incose.org/symp2007/.

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2007 INCOSE-LA Awards

The 2007 Board is proud to present to the membership the following awards issued to members of the INCOSE-LA chapter:



Susan C. Ruth Award: Paul Su

Susan C. Ruth has this award named after her because for the first ten years of the Chapters existence she provided service in every way possible while never seeking anything other than the betterment of the Chapter. The award was started in 2001. It is meant to recognize LA Chapter Volunteers who have given a significant amount of volunteer service to the chapter for at least 5 years.



President's Award: Dana Pugh

The Presidents Award was started in 2003 as a way to distinguish a member that provided service to the chapter while the current president was in office. This award is to honor those who step up and do outstanding work even when they are not elected or appointed to the task.

CSER 2008 Announcements

The CSER 2008 Committee is now in the process of forming. INCOSE-LA members interested in volunteering should contact Malina Hills at malina.m.hills@aero.org.

The Board and Officers wish to welcome the following new members in the Los Angeles Chapter of INCOSE:

Note: The information listed below is pulled from the member directory and is based upon your initial membership application. If the information is not correct or complete, then please access the member directory (at www.incose.org) to update your information.

Name	Title	Company
Greg Arsenault	Program Systems Engineer	Enigma Science
Todd Bayer	Systems Engineer	NASA
Chris Bowman		Northrop Grumman Corporation
Mark Carlson	System Safety Manager	Raytheon Space and Airborne Systems
Henry Chen	Systems Engineer II	Raytheon Space and Airborne Systems
Scott Christensen		
Caskey Dickson	Manager, Computer Science Laboratory Facilities	Loyola Marymount University
Dr. Barry Fishman		LinQuest Corporation
Andre Girerd	Space Systems Engineer	Jet Propulsion Laboratory
Patrick Kearins	Communication Engineer	Raytheon Space and Airborne Systems
Leonard Koike		Raytheon Space and Airborne Systems
Samuel McKeehan	Systems Engineer	Northrop Grumman Aircraft
Ryan Nakamoto	Multi-Disciplined Engineer	Raytheon Space and Airborne Systems
John Oonk	Engineer	Teradyne
Sallie Piccorillo	Lead, Systems Engineering	The Boeing Company
Leigh Resenberg	Group Supervisor	Jet Propulsion Laboratory
Maurizio Salato	Student	Loyola Marymount University
Warren Scheinin	Systems Engineer	Northrop Grumman Corporation
Shah Selbe	Engineer	Boeing Satellite Development Center
Brian Selvy	Project Engineer	Meggitt Thermal Systems
Mesrop Simonian	Student	Loyola Marymount University
Rajesh Singh		Southern California Edison
Zerlene Zapata	Systems Engineer	Northrop Grumman Corporation

Return Address:

**PO Box 490341
Los Angeles, CA 90049**

The International Council on Systems Engineering (INCOSE) is an organization formed for the purpose of advancing the art and science of systems engineering in various areas of the public and private sectors. The Los Angeles Chapter meets several times per year for dinner meetings, and additionally sponsors tutorials and other activities of interest to those in the systems engineering field or related fields. L. A. Chapter Officers are as follows:

2007 Officers and Board

President:	James Manson III	james.a.manson-iii@boeing.com or	president@incose-la.org
Vice-President:	John "David" Boyd	john.boyd@incose.org or	vicepresident@incose-la.org
Past President:	Gina Kostelecky-Shankle	Gina.Kostelecky-Shankle@ngc.com or	pastpresident@incose-la.org
Treasurer:	Marsha Weiskopf	marsha.weiskopf@aero.org or	treasurer@incose-la.org
Secretary:	Anna Warner	anna.warner@boeing.com or	secretary@incose-la.org
Membership:	Paul Cudney	paul.cudney@incose.org or	membership@incose-la.org
Programs/Speakers:	Jack Elson	jelson@nu.edu	programs@incose-la.org
Ways and Means:	Sherry Pietras	sherry.l.pietras@boeing.com or	waysandmeans@incose-la.org
Tutorials/Education:	TBD	or	setraining@incose-la.org
Communications:	James Pederson	james.e.pederson2@boeing.com or	communications@incose-la.org
Newsletter Editor:	Eric Belle	eric_c_belle@raytheon.com	newsletter@incose-la.org
Reflector Editor:	Susan Ruth	susan.c.ruth@aero.org	
Industrial Relations Chair:	Malina Hills	malina.m.hills@aero.org	
Technical Society Liaison:	Edmund Conrow	info@risk-services.com	

Those interested in INCOSE membership please contact Paul Cudney - paul.cudney@incose.org. If you wish to be placed on our E-mail distribution, please contact Susan Ruth - susan.c.ruth@aero.org.