Welcome Message:
T. Dwayne McCay  
Vice President & Chief Operating Officer  
President-Elect Florida Institute of Technology

Conference Introduction:
Isabelle Rongier  
President  
IAASS

Keynote Speakers:
Roberto Battiston  
President  
Italian Space Agency

Kiyoshi Higuchi  
President  
International Astronautics Federation  
VP ret. Japan Aerospace Exploration Agency

Jan Droz  
Deputy Director of Safety, Security and Environment  
French Space Agency (CNES)

Guy A. Boy  
Dean School of Human Centered Design, Innovation and Arts  
Florida Institute of Technology

S01: Session 01: Launch Safety Risk (11:00am - 12:30pm)

Source Data Applicability Impacts on Epistemic Uncertainty forLaunch Vehicle Fault Tree Models
Mohammad Izeddin Al Hassan  
NASA/Bastion Technologies Incorporated, United States of America;  
mohammad.i.alhassan@nasa.gov

Lessons Learned from accepting the satellites developed by the organizations externally to JAXA for H-IIA launches
Manami Nogami  
JAXA, Japan;  
nogami.manami@jaxa.jp

Pitfalls and Precautions when using Predicted Failure Data for Quantitative Analysis of Safety Risk for Human Rated Launch Vehicles
Glen Spencer Hatfield, Frank Hark, James Stott  
1NASA/Bastion Technology inc., United States of America; 2NASA Safety and Mission Assurance;  
Glen.S.Hatfield@nasa.gov

Characterizing Epistemic Uncertainty for Launch Vehicle Designs
Steven David Novack, Jim Rogers, Frank Hark, Mohammad Al Hassan  
1NASA/Bastion Technologies Incorporated, United States of America;  
steven.d.novack@nasa.gov
S02: Session 02: Lessons Learned (11:00am - 12:30pm)

Role of Ground Safety Reviews in ISS Payload Mission Success
Ravi Narayana Margasahayam, Theodore Meade
NASA, United States of America; Ravi.N.Margasahayam@nasa.gov

Icarus Laugh. Risk and space conquest
Jacques Arnould
Centre national d’études spatiales, France; jacques.arnould@cnes.fr

The Demise of the Safety Engineer – Overcoming the Potential Impact on Space Safety
James Allen Runnells
JSC JETS Contract, HX5, LLC, United States of America; james.runnells@jacobs.com

S03: Session 03: Commercial Spaceflight - I (11:00am - 12:30pm)

The Evolution of the NASA Commercial Crew Program Mission Assurance Process
Amy Christine Canfield
NASA / John F. Kennedy Space Center, United States of America; Amy.C.Canfield@nasa.gov

Safety Considerations regarding Commercial Human Spaceflight Training
Nicholas Mercury Carlstrom
Embry-Riddle Aeronautical University, United States of America; carlstrom@my.erau.edu

The Right Stuff ‘V’ The Right (Safe) Thing
Andy Quinn\textsuperscript{1}, Ivan Sikora\textsuperscript{2}
\textsuperscript{1}SATURN SMS Ltd, United Kingdom; \textsuperscript{2}City University, United Kingdom; andyquinn@saturnsms.com

S04: Panel Session: Impact of Newcomers

“CubeSat, ChipSat, Small Satellites and Huge Constellations”
(11:00am - 12:30pm)

A Systematic Study of Laser Ablation for Space Debris Mitigation
William Jerome Burger\textsuperscript{1}, Roberto Battiston\textsuperscript{1}, Andrea Cafagna\textsuperscript{3}, Christian Manea\textsuperscript{3}, Bruno Spataro\textsuperscript{4}
\textsuperscript{1}FBK and TIFPA Trento Italy, Italy; \textsuperscript{2}University of Trento and TIFPA; \textsuperscript{3}TIFPA; \textsuperscript{4}National Laboratory of Frascati; william.burger@cern.ch

RADID - Rapid Assessment of Design Impact on Debris Generation
Sven Weikert\textsuperscript{1}, Bent Fritsche\textsuperscript{2}, Valentino Zuccarelli\textsuperscript{1}, Jochen Teufel\textsuperscript{1}, Irene Huertas\textsuperscript{3}, Sven Erb\textsuperscript{3}
\textsuperscript{1}Astos Solutions GmbH, Germany; \textsuperscript{2}Hypersonic Technology Goettingen (HTG), Germany; \textsuperscript{3}European Space Agency, ESTEC, The Netherlands; sven.weikert@astos.de

Improving Space Safety with Effective End-of-Life Solutions
Lorenzo Ferrario\textsuperscript{1}, Stéphane Heinrich\textsuperscript{1}, Alessio Fanfani\textsuperscript{3}, Stefano Antonetti\textsuperscript{1}, Luca Rossettin\textsuperscript{1}
\textsuperscript{1}D-Orbit; \textsuperscript{2}Altran; lorenzo.ferrario@deorbitaldevices.com

Long term orbit propagation: lessons learnt and on going activities at CNES
Vincent Morand, Clemence Le Fevre, Hubert Fraysse
CNES, France; vincent.morand@cnes.fr
S06: Session 06: Regulations & Standards – I (2:00pm - 3:30pm)

2016 U.S. Safety Regulation Status Update
Diane Howard
Embry-Riddle Aeronautical University, United States of America; diane.howard@erau.edu

Regulation of Safety of Space Mining
Ram S. Jakhu, Joseph N. Pelton
McGill University, Canada; ram.jakhu@mccgill.ca

Commercial Human Spaceflight: What Regulation?
Tommaso Sgobba1, Michael Kezirian2
1International Association for the Advancement of Space Safety, Netherlands, The; 2International Space Safety Foundation, USA; tommaso.sgobba@iaass.org

Filling The Regulatory Void For Launch And Reentry Safety Resulting From The Commercialization Of Space Operations
Ruth Stilwell
Aerospace Policy Solutions, LLC, United States of America; office@aerospacepoliciesolutions.com

S07: Session 07: Launch Ground Operations Safety (2:00pm - 3:30pm)

Dealing with a subtle danger during launch preparation operations: oxygen-deficient atmosphere leading to anoxia
Miguel Morère
CNES, France; miquel.morere@cnes.fr

Ground Operations Human Factors Task Analysis Pathfinder
Timothy Barth1, Charlie Dischinger1, Cynthia Null1, Damon Stambolian1, Don Tran1, Marcia Groh-Hammond2, Gena Henderson2, Darcy Miller2, Tracy Neal2, Richard Parker2, Barbara Kanki3, Rich Ellenberger4, Jennifer Boyer5, David Reynolds5, Matt Czech5, Jeannie Ruiz5
1NASA Engineering and Safety Center; 2KSC Engineering; 3KSC Safety and Mission Assurance; 4Ames Human Factors; 5JSC Human Engineering; 6MSFC Human Factors; 7KSC Ground Systems Development and Operations; tim.barth@nasa.gov

The Payload Safety Handbook: a self-supporting tool to ensure the respect of regulations applicable to spacecraft at the Guiana Space Center
Loriane Bourjac
CNES, France; loriane.bourjac@cnes.fr

Ensuring Payload Safety on Missions Involving Special Partnerships
Calvert A. Staibus, Rachel C. Willenbring
NASA, United States of America; calvert.a.staibus@nasa.gov

S08: Session 08: Designing Safety – I (2:00pm - 3:30pm)

Flat H Redundant Frangible Joint - Evolution
Thomas Edward Diegelman, Christopher W Brown, Brian V. Rochon, Todd Hinkel, Andrew L Benjamin
NASA / JSC, United States of America; thomas.e.diegelman@nasa.gov

Pressure Suits for Suborbital Spaceflight - mandatory or not?
Christian Lüthen1, Neil Jaschinski2
1Erasmus MC - University Hospital Rotterdam, Netherlands, The; 2Applied Rocket Technology; c.luthen@erasmusmc.nl

Overview of Non-Ionizing Radiation Safety Operations on the International Space Station
John Flores-McLaughlin1, Sam Ghalayini1, James Runnels2, Ramona Gaza3
1University of Houston / NASA Space Radiation Analysis Group, United States of America; 2Lockheed Martin IS&GS; 3Jacobs Technology; 4Lockheed Martin IS&GS / NASA Space Radiation Analysis Group, United States of America; john.flores.mclaughlin@nasa.gov
**S09: Session 09: Safety Critical Software (4:00pm - 6:00pm)**

**STPA for space software dependability and safety**

Carlos Henrique Netto Lahoz¹,², Synara Rosa Gomes de Medeiros²

¹Massachusetts Institute of Technology MIT, United States of America; ²Embraer, Brazil; ³Instituto de Aeronautica e Espaco IAE, Brazil; lahoz@mit.edu

**A FDIR implementation based on functional and software units design**

Olivier Boudillet, Jacques Magne

AIRBUS DEFENCE & SPACE, France; olivier.boudillet@asat.eads.net

**Safety Characteristics In Systems Application Software For Human Rated Exploration Missions**

Edward Joseph Mango

NASA / US Govt, United States of America; ejm54321@icloud.com

---

**S10: Session 10: Launch Safety – I (4:00pm - 6:00pm)**

**Launch and Reentry Safety Objectives**

Jerold Mark Haber

ACTA, Inc, United States of America; haber@actainc.com

**Improved Range Safety Methodologies for Long-Duration Heavy-lift Balloon Missions Over Populated Regions**

George M Lloyd¹, Kevin Benn¹, Jerry Haber¹, Danielle Franklin²

¹ACTA Inc., United States of America; ²Pacific Missile Range Facility; lloyd@actainc.com

**Near range safety analysis for a reusable launcher concept based on Toss-Back**

Alexandra Martinez Torio, Vanessa Guenard, Jean-Marc Bahu, David Delorme

CNES, France; alexandra.martineztorio@cnes.fr

**Common Cause Failure Modeling in Space Launch Vehicles**

Frank Hark¹,², Paul Britton¹,², Rob Ring¹,³, Steven Novack¹,³, James Stott¹,³

¹Bastion Technologies Incorporated, United States of America; ²Marshall Space Flight Center Safety and Mission Assurance; ³NASA; frank.hark@nasa.gov

---

**S11: Session 11: Operations Safety (4:00pm - 6:00pm)**

**You Can't Reach for the Stars if You are Tripping Over the Ground! (Preventing Slips, Trips, and Falls)**

Darcy H. Miller¹, Mark S. Raysich², Mary K. Kirkland³

¹NASA-KSC, United States of America; ²APT; ³Integrated Mission Support Service; Darcy.H.Miller@nasa.gov

**Recurring Themes from Human Spaceflight Mishaps During Flight Tests and Early Operations**

Timothy Barth¹, Steve Lilley¹, Donna Blankmann-Alexander¹, Barbara Kank¹, Blake Parker²

¹NASA Engineering and Safety Center; ²NASA Safety Center; ³Abacus Technology Corporation; ⁴Ames Research Center; ⁵ASRC Aerospace; tim.barth@nasa.gov

**The safety approval of procedures used on board ISS**

Alessandro Nocera¹, Pietro Mannini²

¹Aviospace s.r.l.; ²Thales Alenia Space S.p.A.; alessandro1975@gmail.com

**Probabilistic Survivability Versus Time Moeling**

James Jeffrey Joyner, Sr

NASA, United States of America; James.J.Joyner@nasa.gov
S12: Session 12: Probabilistic Risk Assessment (4:00pm - 6:00pm)

Space Mission PRAs
Diana L. DeMott
SAIC, United States of America; didm@att.net

Resilience Engineering for space missions safety assessment
Riccardo Patriarca, Francesco Costantino, Giulio Di Gravio
Sapienza University of Rome, Italy; riccardo.patriarca@uniroma1.it

Quantifying the Benefit of a Developmental Test Program: Probabilistic Risk Assessment and Red Bull Stratos
Akshay Kothakonda, Jonathan Clark, Art Thompson, Michael Toviriz Kezirian
1University of Southern California, United States of America; 2National Space Biomedical Research Institute, United States of America; 3Sage Cheshire Aerospace Tooling, United States of America; kezirian@usc.edu

International collaboration for HTV PRA analysis
Masami Miki1, Satomi Takada1, Takashi Goto1, Koji Oga1, Toru Yoshihara2, Hiraku Kudo1, Norimitsu Kaminori2, Jinfeng Ni2, John Yasensky1, Philip Mortillaro1
1JAMSS, Japan; 2JAXA, Japan; 3MAPI Contract, USA; miki.masami@jamss.co.jp

Dynamic fault tree analysis using Monte Carlo simulation in probabilistic safety assessment
Jinjing Wang, Liming Ren, Hang Wu
China Academy of Aerospace Standardization and Product Assurance, China, People’s Republic of; wanjing1998@eyou.com

Thursday, May 19

Plenary Session Part II (08:30am - 10:00am)

Keynote Speakers:

Charles Bolden
Administrator
National Aeronautics and Space Administration

Andrew M. Mueller
Chief of Safety
United States Air Force

George Nield
Associated Administrator
Federal Aviation Administration For Commercial Space Transportation

Jules Schneider
Orion Program AIP Manager
Lockheed Martin Space Systems Company

Christophe Chicher
Head of System Design and Performance
Airbus DS
S13: Session 13: Commercial Spaceflight – II (10:30pm - 12:00pm)

Single Stage To Orbit Spaceplane Safety
Andy Quinn1, Richard Varvill2
1SATURN SMS Ltd, United Kingdom; 2Reaction Engines Ltd; andyquinn@saturnsms.com

Operational Safety Considerations for Rapid Turnaround Private Suborbital Flight Providers
Justin Otto Karl
Embry-Riddle Aeronautical University, United States of America; justin.karl@erau.edu

Development of a Commercially Available Pressure Suit for Suborbital Flight
Erik Seedhouse
Embry-Riddle University, United States of America; seedhoue@erau.edu

From Parabolic to Manned Sub-orbital Flights: S3 Safety and Certification Approach
Jean-Bruno Marciacq, Thomas Avanzi, Davide Apostolo, Ntorina Antoni
Swiss Space Systems (S3), Switzerland; jean-bruno.marciacq@s-3.ch

S14: Session 14: Launch Safety – II (10:30am - 12:00pm)

Potential Uses of Consequence Analyses for Range Safety
Paul David Wilde
Federal Aviation Administration, United States of America; paul.wilde@faa.gov

Managing a Safe and Successful Multi-User Spaceport
Taylor M Dacko, Kirk A Ketterer, Phillip T Meade
NASA Kennedy Space Center, United States of America; taylor.m.dacko@nasa.gov

Launch System Hazard Analysis : Methodology And Lessons Learnt After 5 Years Of Application
David Delorme, Arnaud Biard
CNES, France; david.delorme@cnes.fr

The use of an atmospheric model for studying the gas dispersion at the Brazilian space launch center
Gilberto Fisch1, Paulo Geovani Iriart2, Vinicius Couto Milanez3, Carlos Augusto Teixeira de Moura4
1Alcantara Cyclone Space - ACS, Brazil; 2Aeronautics and Space Institute - IAE, Brazil; 3Technical Institute of Aeronautics - ITA, Brazil; catmoura08@gmail.com

S15: Session 15: Organization Culture – I (10:30am - 12:00pm)

Purpose, Principles, and Challenges of the NASA Engineering and Safety Center
Michael Gilbert
National Aeronautics and Space Administration, United States of America; michael.g.gilbert@nasa.gov

Observations, Reflections, and Lessons Learned... from ~500 SSPCBs & ~1000 IMMTs... and gobs of SORRs, FRRs, etc.
George K Gafka
NASA, United States of America; george.k.gafka@nasa.gov

Space Safety Culture and Policy
Lt Col Steve Bogstie
AFSEC/SES, United States of America; steven.bogstie@us.af.mil

Launch Systems Conformity Training Process and academic methodology
Caroline Gabrielle Josephine Aussilhou, David Gerard Miot
CNES, France; caroline.aussilhou@cnes.fr
S16: Session 16: Regulations & Standards – II (10:30am - 12:00pm)

Need for Space Regulation in India
Sanat Kaul
International Foundation for Aviation, Aerospace & Development (India Chapter), India; sanat_kaul@hotmail.com

Policy Challenges Related to Nanosatellites
Matteo Emanuelli¹, Blake James Edwards¹, Matt Driedger¹, Justin Atchison¹, Jordan Sotudeh¹, Gabriel Lapilli¹, Maria Grulich¹, Laura Bettiol¹, Caroline Tho¹, Eren Gorur¹, Leehandi De Witt¹, Alon Davidi¹, Suman Gautam¹, Sirisha Bandla¹, Juan Gramajo¹, Milan Mijovic¹, Laura León Perez¹, Chanteille Dubois¹, Emmanuelle David¹, Meidad Pariente¹, Chris Johnson¹
¹Space Generation Advisory Council, Austria; ²Spacecialist, Israel; ³Secure World Foundation, USA; glapilli2009@my.fit.edu

Near space and modern aerospace principles
Taro-Jesus Kuusiholma
Sharper Shape Inc., Finland; taro.kuusiholma@sharppershape.com

Proposal For A Governing Space Safety Treaty Organization
Leslie Ann Alford
A-P-T Research, Inc., United States of America; lalford@apt-research.com

Legal Challenges to the Safety of Commercial Space Activities Provided by Aerospace Launch Systems
Ntorina Antoni
Swiss Space Systems Holding SA, Switzerland; ntorina.antonii@s-3.ch

S17: Session 17: Re-entry Safety – I (1:30pm - 3:00pm)

Upgraded version of the DEBRISK object-oriented tool
Julien Annaloro, Guillaume Prigent, Stéphane Galera, Pierre Omaly
CNES, France; julien.annaloro@cnes.fr

Rationale and methodologies of ADMIRE - Aviation (Space) Debris and Meteorites Integrated Risk Evaluation
Matteo Emanuelli¹, Tommaso Sgobba¹, Hauke Ernst¹, Sven Weikart¹, Tobias Lips¹, Jonas Radlke¹, James Beck¹,³, Jim Merrifield¹, Carmen Pardini¹, Luciano Anselmo¹, Jeremy Vaubaillon¹,⁵, Daniel Hestroffer¹,⁷, Carl-Herbert Rokitansky¹, Bruno Lazare¹, Thomas Hau²,⁴, Julgen Lang¹,³,⁶, Jens Hanpe¹
¹International Association for Advancement of Space Safety; ²Airbus Defence and Space; ³ASTOS; ⁴HTG; ⁵ISTI-CNR; ⁶Universität Salzburg; ⁷TU Braunschweig; ²Leibniz Universität Hannover; ³Deutsches Zentrum für Luft- und Raumfahrt; ⁴Meteosolutions; ⁵Belstead Research; ⁶Fluid Gravity Engineering; ⁷IMCCE; iaass.president@gmail.com

In-Orbit Demonstration of Satellite Re-entry Capabilities: the D-SAT Mission
Alessio Fanfani¹, Alexander Weigand², Elena Toson¹, Simone Brilli¹, Matteo Trotti¹, Angelo Dainotto¹, Lorenzo Ferrario¹
¹D-Orbit, Italy; ²Bayern-Chemie, Germany; alessio.fanfani@deorbitaldevices.com

S18: Session 18: Space Traffic Control – I (1:30pm - 3:00pm)

Preliminary Study On Inadvertent Laser Illumination Hazards Posed To Satellite Optical Sensors
Patrick Shriver¹, Karen Yamamoto¹, Chad Cogburn¹, Chris Jones¹, Ken Miller²
¹Metatech Corporation, United States of America; ²Satellite Assessment Center, Air Force Research Laboratory, United States of America; patrick.shriver@metatechcorp.com

The Impact of New Trends in Satellite Launches on Orbital Debris Environment
Arif Göktaş Karacaloğlu, Jan Stupl
NASA Ames Research Center, United States of America; pkaracaloglu@gmail.com

Orbital Debris: What are the best near-term actions to take? A view from the field
Mark Andrew Skinner
The Boeing Company, United States of America; mark.a.skinner@boeing.com
**Analysis On Spacecraft Safety Enhancement Through On-Orbit Servicing**

Aureliano Rivolta, Jeremy Wang, Caroline Thro, Nicolò Carletti, Ali Nasseri, Joao Lousada, Matteo Emanuelli  
Space Generation Advisory Council; aureliano.rivolta@gmail.com

**S19: Session 19: Designing Safety – II (1:30pm - 3:00pm)**

Predicting Damaged Pressure Vessel Failure After Orbital Debris Strike  
Michael Scott Surratt, Michael Kezirian  
University of Southern California, United States of America; msurratt@usc.edu

Early Engagement of Safety & Mission Assurance Expertise Using Systems Engineering Tools: A Risk-Based Approach to Early Identification of Safety and Assurance Requirements  
Scott Darpel, Sean Beckman  
NASA John H Glenn Research Center, United States of America; scott.e.darpel@nasa.gov

Safe Use of Electrical COTS hardware in Human Space Flight  
James Allen Runnells  
JSC JETS Contract, HX5, LLC, United States of America; james.runnells@jacobs.com

Tommaso Sgobba  
International Association for the Advancement of Space Safety, Netherlands; iaasspresident@gmail.com

**S20: Session 20: Human Performance – I (1:30pm - 3:00pm)**

Human Factor in flight safety  
Herve Poussin, Thierry Vallee, Regis Bertrand  
CNES, France; herve.poussin@cnes.fr

Managing Cognitive Bias in Safety Decision Making: Application of Emotional Intelligence Competencies  
Walter Scott Hersing  
Kennedy Space Center, United States of America; walter.s.hersing@nasa.gov

IAASS Book Project: “Space Safety and Human Performance”  
Barbara Kanki, Tommaso Sgobba  
International Association for the Advancement of Space Safety; The Netherlands; bkanki@yahoo.com

**S21: Panel Session:**

Role of Standards in Commercial Human Spaceflight Safety Governance  
(1:30pm - 3:00pm)

**S22: Session22: Space Debris – II (3:30pm - 5:30pm)**

Good practice for upper stages going to Lagrangian point - Application to the Ariane 5 JWST mission  
David-Alexis Handschu1, Jean Campedelli2, Norbert Lidon2  
1CNES Launcher Directorate, France; 2ALTEL, France; 2ESA Launcher Directorate; david-alexis.handschu@cnes.fr

Satellite Design for Demise: Updated state of the art and innovative concepts  
Stephane Heinrich1, Lilith Grassi2, Roberto Destefanis3  
1ALTRAN, France; 2THALES, Italy; stephane.heinrich@altran.com
Debris Remediation Examined via an Operational Success Framework
Darren Scott McKnight
Integrity Applications, Inc., United States of America; dmcknight@integrity-apps.com

Fast and Flexible Space Debris Risk Assessment for Satellites
Max Gulde, Scott Kempf, Frank Schäfer
Fraunhofer Institute for High-Speed Dynamics, Ernst-Mach-Institut, Germany; gulde@emi.fhg.de

S23: Panel Session: SpaceShipTwo Lessons Learned
(3:30pm - 5:30pm)

S24: Session 24: Materials (3:30pm – 5:30pm)

Investigation of Ti-6Al-4V alloy response to atmospheric re-entry exposure
Jessica Lynn Buckner, Stephen W Stafford, Darren M Cone, John D Olivas
University of Texas at El Paso, United States of America; lmorris@miners.utep.edu

The Spacecraft Fire Experiment (Saffire) – Objectives and Status
William Robert Schoren, Gary Ruff, David Urban
NASA Glenn Research Center, United States of America; william.r.schoren@nasa.gov

About the Demisability of Propellant Tanks during Atmospheric Re-entry from LEO
Tobias Lips1, Ronny Kanzler1, Thor Schleutker4, Ali Guelhan1, Benoit Bonvoisin4, Tiago Soares1, Gerben Sinnema3
1HTG GmbH, Katlenburg-Lindau, Germany; 2DLR, Cologne, Germany; 3ESA/ESTEC, Noordwijk, The Netherlands; 4isa@htg-hst.de

Demise and Survivability Criteria for Spacecraft Design Optimisation
Mirko Trisolini, Hugh Lewis, Camilla Colombo
University of Southampton, United Kingdom; m.trisolini@soton.ac.uk

S25: Panel Session: Space Safety Education
(3:30pm - 5:30pm)

Friday, May 20

S26: Session 26: Space Traffic Control – II (8:30am - 10:30am)

Exploring Necessary Altitude Awareness and Response Times for Air Traffic Control during Space Launch and Reentry Vehicle Operations
Zheng Tao1, Ganghuai Wang1, Paul D. Wilde2
1The MITRE Organization, United States of America; 2Federal Aviation Administration; ztao@mitre.org

Optimal Impulsive Design for Aeroassisted Orbit Transfer in Noncoplanar Orbit Debris Remove
Ruidong Yan
National Space Science Center, Chinese Academy of Science, China, People’s Republic of; yanruidong@nssc.ac.cn
Why a future commercial spacecraft must be able to SWIM
Frank Morlang1, Jorge Ferrand2
1German Aerospace Center DLR, Germany; 2Embry-Riddle Aeronautical University ERAU, USA; frank.morlang@dlr.de

Aerocene: Obtaining Regulatory Approval and Performing Risk Assessment for Stratospheric Science and Human Spaceflight
Michael Tevriiz Kezirian
University of Southern California, United States of America; kezirian@usc.edu

Space Situational Awareness and Space Traffic Management Points of Intersection
George Vazquez
Aerospace, United States of America; rick.vazquez@aero.org

Development of Space Debris Collision Warning Techniques in NSSC
Ronglan Wang, Siqing Liu
National Space Science Center, Chinese Academy of Sciences, China, People’s Republic of; wangrl@nssc.ac.cn

S27: Session 27: Re-entry Safety – II (8:30am - 10:30am)
Update of aerodynamics and heat flux model for ORSAT-J
Keiichiro Fujimoto, Hiroumi Tani, Hideyo Negishi, Yasuhiro Saito, Nobuyuki Iizuka, Koichi Okita
Japan Aerospace Exploration Agency, Japan; fujimoto.keiichiro@jaxa.jp

Atmospheric entry of space debris: oxidation and emissivity data for model implementation
Marianne Balat-Pichelin1, Julien Annaloro2, Pierre Omaly3
1PROMES-CNRS laboratory, France; 2CNES, Toulouse, France; 3CNES, Toulouse, France; marianne.balat@promes.cnrs.fr

S28: Session 28: Organization Culture – II (08:30am - 10:30am)
NASA’s Approach to Technical Excellence of Safety Professionals
John Marinaro, Harmony Myers
NASA, United States of America; john.marinaro-1@nasa.gov

NASA’s Safety Culture Path
Tracy G Dillinger
NASA, United States of America; Tracy.Dillinger@nasa.gov

The Evolution of Continuing Education & Training for Safety & Mission Assurance Professionals
Megan Stroud, Tom Pfitzer
A-P-T Research, Inc., United States of America; matroud@apt-research.com
S29: Session 29: Designing Safety – III (8:30am - 10:30am)

How to ensure medical safety and rescue in human spaceflight for the future
Yacine Benyoucef
SPACEMEDEX, France; yacine.benyoucef@gmail.com

Unified maximum likelihood based method for composite stress rupture data analysis
Amy Engelbrecht-Wiggans
Cornell University, United States of America; aee5@cornell.edu

Aerospace Pressure Vessel Standards: Update on AIAA S-080A and AIAA S-081B
Michael Tevriz Kezirian
University of Southern California, United States of America; kezirian@usc.edu

S30: Panel Session:
Mishap Investigation in US
(08:30am - 10:30pm)

S31: Session 31: NEO & Cosmic Hazards (11:00am - 12:30pm)

Asteroids discovery and astrometry reduction using CoLiTec software: research and development
Sergii Khlamov1, Oleksandr Briukhovetskyi2, Vadym Savanevych3, Eugene Dikov3, Artem Pohorelov4
1Kharkiv National University of Radioelectronic, Kharkiv, Ukraine; 2Kharkiv, Ukraine; 3Kharkiv representative of the general customer - State Space Agency of Ukraine, Kharkiv, Ukraine; 4Uzhhorod National University, Uzhhorod, Ukraine; 5Research, Design and Technological Institute of Micrographics, Kharkiv, Ukraine; sergii.khlamov@gmail.com

Space Situational Awareness Programme: enhanced NEO Propagator (NEOProp2)
Valentino Zuccarelli1, Celia Yabar Valles2
1Astos Solutions GmbH, Germany; 2ESA Estec, The Netherlands; valentino.zuccarelli@astos.de

Global Cosmic Risk Assessment Study (COSRAS) by the IAASS
Joseph Pelton
Chair IAASS Academic Committee, The Netherlands; jopelton@verizon.net

S32: Session 32: Human Performance – II (11:00am - 12:30pm)

Human Factors Checklist: Think Human Factors - Keep the Human in the Loop
Darcy H. Miller1, Katrine S. Stelges2, Timothy S. Barth3, Damon.B. Stambolian4, Gena M. Henderson1, Charles Dischinger3, Barbara.G. Kanik1
1NASA-KSC, United States of America; 2Jacobs Technology; 3NASA Engineering Safety Center; 4NASA-ARC, Retired; Katrine.S.Stelges@nasa.gov

A Methodology for Trending International Space Station Human Factors Data
Bettina L Beard1, Cynthia H Null2, Gordon A Voss3, Susan Schuh4
1NASA Ames Research Center, United States of America; 2NASA Langley Research Center, United States of America; 3NASA Johnson Space Center, United States of America; 4MEI Technologies, United States of America; tina.beard@nasa.gov

Organizational, technical and human resilience in complex operations
Stig O. Johnsen1, Knut Fossum2, Brit-Eli Danielsen1
1Sintef, Trondheim, Norway; 2-N-USOC CIRIS at NTNU, Trondheim, Norway; stig.o.johnsen@sintef.no
S33: Session 33: Safety on Long Duration Missions (11:00am - 12:30pm)

Study of Safety Assessment for Chinese Space Station Operation Mission
Wei Zhang, Fuqiu Li, Fengxi Chen, ShouSong Qing
China Astronautics Standards Institute, China, People's Republic of; zhw1986@126.com

Identification of Hazards Associated with a One-way Human Mission to Mars
Joao Lousada, Aureliano Rivolta, Matteo Emanuelli, Ali Nasseri
Space Generation Advisory Council, Austria; jmclousada@gmail.com

Develop global Safety synergies for long-range human space exploration, with focus on Launch Systems (manned and unmanned)
Aline Decadi
HE Space Operations BV on behalf of European Space Agency, France; aline.decadi@esa.int

S34: Lecture by N. Packham:
Role The Columbia Crew Survival Investigation Report – What happened to the STS-107 Columbia crew and what can be learned from it
(11:00am - 12:30pm)

S35: Lecture by C. Lauer:
A Global Perspective On Suborbital Commercial Human Spaceflight Safety
(11:00am - 12:30pm)

Plenary Closing Session Pt. 1 (02:00pm - 03:00pm)

Hypersonic, Space Transit, and Space Access Flight Test
James Vasil Souders1, Timothy R Jorris2
1AFSEC/SES, United States of America; 2Lockheed Martin Aeronautics Company; timothy.r.jorris@lmco.com

Plenary Closing Session Pt. 2 (03:00pm - 04:00pm)

SABRE & Skylon: The Next Generation in Space Access
Andy Quinn, Mark Thomas, Richard Varvill
Reaction Engines, United Kingdom
Orbital Debris Atmospheric Reentry
Stephane Heinrich¹, Florent Leglise¹, Luke Harrison¹, Frederic Renard²
¹ALTRAN, France, Cannes; ²ALTRAN, France, Lyon; stephane.heinrich@altran.com

Escape Cabin
Robert N. Talmage
TAAS Company, United States of America; rttalmage@taascompany.com

Orbit covariance prediction based on numerical orbit model
Ruidong Yan, Ronglan Wang, Siqing Liu
National Space Science Center, Chinese Academy of Science, China, People's Republic of; yanruidong@nssc.ac.cn

The Accident Mechanism and Model for Aerospace Software System
Xiao Sun, Xinlei Zhou, Jie Yang, Renfei Dong, Jie Jin
China Academy of Aerospace Standardization and Produce Assurance, China, People’s Republic of; sunxiao83@163.com

A method based on IPOS model for software hazard probability risk analysis
Jie Yang, Xinlei Zhou, Jiahui Luan, Xiao Sun, Jie Jin
China Academy of Aerospace Standardization and Produce Assurance, China, People’s Republic of; yjieex@163.com