

Table of Contents

Monday, 14 May 2007

08:00 Registration and Coffee

10:00 Plenary Session: Part 1 (Room 504)

T. Sgobba, IAASS President: Conference Introduction and Welcome Address

Keynote Speakers:

B. O'Connor, NASA Associated Administrator Safety and Mission Assurance

H. Hasegawa, JAXA Head of Product Assurance and Safety

J. Bosma, ESA Head of Product Assurance and Safety

V. Davydov, Deputy Head FSA (TBC)

11:15 Coffee Break

11:45 Plenary Session: Part 2 (Room 504)

Keynote Speakers:

Patricia Grace Smith, FAA-AST Associated Administrator

V. Krishnamurty, ISRO General Manager, MA&RS Satish Dhawan Space Centre

M. Pedley, NASA-JSC Head of Materials Division

McNamara, Lockheed-Martin, Orion

12:45 Conference Lunch (Room 501)

Guest Speaker: R. Stuart, President ARES Corporation

Session 1: Legal and Regulatory Issues - Part 1

14:00-15:30 (Room 503a)

Chairs: R. Jakhu; J. Pelton

- Developing Commercial Human Space Flight Regulations
Wong, K.
DOT/FAA (United States)
- Space Traffic Management, Regulation Needs for Space Safety in the Light of the Latest Developments in the Space Community: Earth, the Moon and Mars
Schoenmaker, A.
International Space University (France)
- Creation of an International Civil Space Organization: Old Obstacles and New Challenges
Bashor, H.W.
American Graduate School of International Relations & Diplomacy (France)
- The Coexistence of Civil Aviation and Extra-Atmospheric Flight Solicits an Advanced Airspace System and Concerning Regulations
Spada, M.
Università di Roma (Italy)

Session 2: Organizational Culture and Safety - Part 1

14:00-15:30 (Room 503b)

Chairs: J. Holsomback; J. Frost

- Organisational and Cultural Roles in Safety Failures in High Consequence Operations
Jones, M.
Atomic Weapons Establishment (United Kingdom)
- The Perplexity of Safety Jargon
Johnson, P.T.¹; Grayson, C.M.²
¹Boeing (United States); ²ARES Corporation (United States)

- Risk Analysis Using Modeling and Simulation of Organizational Structure and Behavior
Silbovit, A.
Safeware Engineering Corporation (United States)
- Safety Excellence
Bohle, D.K.H.; Hampe, P.; Lenic, J.
DLR (Germany)

Session 3: Microbiological Risk and Control

14:00-15:30 (Room 502a)

Chairs: W. Wong; M. Pedley

- Microbiological Risks Onboard the International Space Station
Novikova, N.
Institute for Biomedical Problems RAS (Russian Federation)
- Development and Monitoring of Microbial Contamination in Closed Space Cabins by Electronic Nose Technology
Hettwer, K.¹; Warrelmann, J.¹; Lenic, J.²; Bohle, D.²
¹Centre for Environmental Research and Technology (Germany); ²German Aerospace Centre (DLR) (Germany)
- New Means and Methods for Providing Materials Antimicrobial Resistance for Space Applications
Novikova, N.; Deshevaya, E.A.
Institute for Biomedical Problems RAS (Russian Federation)
- Biosafety Assessment of Payloads Containing Biological Materials
Pierson, D.¹; Wong, W.²
¹Johnson Space Center (United States); ²Enterprise Advisory Services (United States)

Session 4: Designing Safety into Space Vehicles - Part 1

14:00-15:30 (Room 504)

Chairs: A. Menzel; R. Chrostowski

- Structural Design of Glass and Ceramic Components for Space System Safety
Bernstein, K.
NASA/JSC (United States)
- ATV Safety Concepts
Chase, R.¹; Festa, F.²; Oliefska, L.³; Wartenberg, H.R.¹
¹ESA (France); ²Festa Engineering (France); ³ESA (Netherlands)
- Reliable, Safe Earth to Orbit Transportation using Existing Evolved Expendable Launch Vehicles
Patton, J.
United Launch Alliance (United States)
- Safety Analysis for the ATV Propulsion and Re-Boost Subsystem
Rieger, T.¹; Ahrens, I.²; Reschke, R.²; Schwarzer, J.²
¹HE Space Operations GmbH (Germany); ²Astrium Space Transportation (Germany)

Session 5: Human Error Prevention - Part 1

14:00-15:30 (Room 502b)

Chairs: N. Bahr; M. Ferrante

- Emotions and Error – What’s the Connection?
Johnson, R.¹; Cowings, P.²; Toscano, B.²; Cormier, B.³; Stobbe, T.³
¹Auburn University (United States); ²NASA (United States); ³Energy Flux (United States)
- Why Smart People do Dumb Things and how to Avoid the Same Mistakes
Hopkins, J.
Error Prevention Institute, Inc. (United States)

- The Application of the SPAR-H Human Reliability Analysis Method to Space Domains
Boring, R.; Gertman, D.I.
Idaho National Laboratory (United States)
- Information Alignment and Distributed Human Coordination of Safety Critical Systems
Caldwell, B.S.; Palmer, R.C.; Kokini, C.; Byrd, K.S.; Ignacio, L.
Purdue University, UNITED STATES
- Discussion

15:30 *Coffee Break*

Session 6: Legal and Regulatory Issues - Part 2

16:00-17:30 (Room 503a)

Chairs: D. Smith; J. Bosma

- Space Safety Standards & Regulation for the Future: Private Space Ventures and the New Regime in Outer Space
Pelton, J.N.
Space & Adv. Comm. Research Institute, George Washington University (United States)
- ASTROREGS - 'The Rules of the Road' in Outer Space
Zissu, J.
Juris Doctor (United States)
- Are the Current International Space Treaties Sufficient to Regulate Space Safety and Establish Liability and Responsibilities?
Jakhu, R.; Nyampong, Y.
Institute of Air and Space Law, McGill University (Canada)
- Space Safety Board to Provide Spaceflight Safety Certification Services to the Space Tourism Industry
Grayson, C.
ARES Corporation (United States)

Session 7: Organizational Culture and Safety - Part 2

16:00-17:30 (Room 503b)

Chairs: B. O'Connor; J. Frost

- Sustaining NASA's Safety Cultural Shift through Effective Team Debriefings and Individual Team Member Self-Assessments
Rogers, D.
Science Applications International Corporation (United States)
- Panel Resource Management (PRM) Implementation: Effects within the Safety Review Panel Settings and Dynamics
Taylor, R.¹; Nash, S.²
¹*NASA/SAIC (United States)*; ²*GHG (United States)*
- Developing a Systematic Approach for Independent Conformity Assessment: the Brazilian Case
Niwa, M.¹; Moura, C.²
¹*IFI - Institute of Fostering and Industrial Coordination / CTA - General Command of Aerospace Techno (Brazil)*; ²*Brazilian Air Force (Brazil)*
- Enhancing the NASA ELV Payload Safety Review Process through Program Activities
Palo, T.¹; Staubus, C.²
¹*NASA-Kennedy Space Center (United States)*; ²*NASA - Kennedy Space Center (United States)*

Session 8: Missions Operations Safety & Safety of Extravehicular Activity (EVA)

16:00-17:30 (Room 502a)

Chairs: H. Hasegawa; M. Childress

- ESA Safety Support to Missions Operations
Favia, V.; Herd, A.
ESA/ESTEC (Netherlands)

- EVA Hazards due to TPS Inspection and Repair
Stewart, C.¹; York, T.²
¹SAIC (United States); ²USA (United States)
- COL-CC, the Focus for Columbus Operations Safety
Buechel, A.¹; Morzuch, G.²
¹ESA (Germany); ²EADS Astrium Space Transportation (Germany)
- Flight Controller Information Technology Use for Task Coordination in Mission Operations
Caldwell, B.S.; Byrd, K.S.; Onken, J.C.
Purdue University, UNITED STATES
- Discussion

Session 9: Designing Safety into Space Vehicles - Part 2

16:00-17:30 (Room 504)

Chairs: R. Chrostowski; R. Johnson

- Risk Assessment Challenges in the Ares I Upper Stage
Stott, J.¹; Anderson, J.M.¹; Hark, F.²; Ring, R.W.²
¹NASA Marshall Space Flight Center (United States); ²Hernandez Engineering, Inc (United States)
- Designing Safety into Space Vehicles through Ground Crew Factors
Barth, T.¹; Kanki, B.²
¹National Aeronautics and Space Administration (United States); ²NASA Ames Research Center (United States)
- Spacecraft Survivability Engineering: a Lockheed Martin Innovation Enhancing Traditional Hazard Control Approaches
Saemisch, M.; Buchanan, M.
Lockheed Martin Space Systems Company (United States)
- Discussion

Session 10: Human Error Prevention - Part 2

16:00-17:30 (Room 502b)

Chairs: T. Heller; N. Bahr

- The Identification and Representation of Human Performance in Novel Space Domains
Joe, J.; Tran, T.O.; Boring, R.L.
Idaho National Laboratory (United States)
- Human Error - It Seemed Like a Good Idea at the Time
Fuller, D.
AIAA Space Operations & Support Technical Committee (United States)
- Teamwork a Key Component in Aerospace Flight Safety Efforts
Livingston, J.
HEI (MSFC S&MA Support Contract) (United States)
- The Symbiotic Relationship Between Astronaut Program and Space Tourism Development – a Third World Perspective
Zakaria, N.¹; Aziz, A.²; Othman, J.²
¹Space Tourism Society Malaysia Chapter (Malaysia); ²University Technology MARA (Malaysia)

Panel Session 1: Time for International Launch Range Safety Standard?

16:00-17:30 (Room 501b)

Organiser: T. Pfitzer, IAASS Launch Range Safety Committee

Tuesday, 15 May 2007

Session 11: Space Debris Hazard - Part 1

09:00-10:30 (Room 503a)

Chairs: W. Ailor; F. Alby

- The Disposal of Spacecraft and Launch Vehicle Stages in Low Earth Orbit
Johnson, N.
NASA (United States)
- Laser Time-Tagging of Space Object Images
Nemec, M.¹; Prochazka, I.¹; Hamal, K.¹; Kirchner, G.²; Koidl, F.²; Voller, W.G.²
¹CTU in Prague, FNSPE (Czech Republic); ²Austrian Academy of Sciences (Austria)
- Protection of Space Vehicles from Micrometeoroid/Orbital Debris (MMOD) Damages
Barr, S.
The Aerospace Corporation (United States)
- RORSAT NaK Coolant Location and Distribution
Muse, F.
Fritz Muse (United Kingdom)

Session 12: Safety Risk Management - Part 1

09:00-10:30 (Room 503b)

Chairs: J. Frost; S. Newman

- Redefining "Safety"
Sirota, L.
NASA HQ (United States)
- A Classification of Open-Loop and Closed-Loop Risk Management Actions
Owens, B.; Laracy, J.R.; Herring, M.S.; Leveson, N.G.
Massachusetts Institute of Technology (United States)
- Knowledge Management Technology and Behavioral Innovations can Enhance Safety Critical Decision Making for Space Exploration
Newman, J.S.; Hawley, J.D.
ARES Corporation (United States)
- Lessons Learned Approach to Database Sharing
Baillie, D.; Baillie, D.R.
JES Tech (United States)

Session 13: Safety on Long Duration Manned Missions - Part 1

09:00-10:30 (Room 502a)

Chairs: C. Shivers; J. Wade

- Technology Development for Fire Safety During Crewed Exploration Missions
Ruff, G.A.¹; Urban, D.L.¹; Miller, F.²; Dietrich, D.¹
¹NASA Glenn Research Center (United States); ²National Center for Space Exploration Research (United States)
- Component and System Pressure Integrity Verification for Crew Safety on Long Duration Mission Manned Spacecraft
Lvovsky, O.¹; Underwood, S.²
¹ARES Corporation (United States); ²The Boeing Company (United States)
- The Incorporation of Medical Emergency Event Sequences into the International Space Station Probabilistic Risk Assessment Model
Haines, R.
ARES Corporation (United States)
- Discussion

Session 14: Designing Safety into Space Vehicles & Crew Escape Systems

09:00-10:30 (Room 504)

Chairs: *J. Fragola; H. Taylor*

- "Design for Reliability and Safety" Approach for the NASA New Launch Vehicle
Safie, F.M.¹; Lo, Y.²
¹NASA (United States); ²Hernandez Engineering Inc. (United States)
- Hazards, Safety and Design Considerations for Commercial Lithium-ion Cells and Batteries
Jeevarajan, J.
NASA-Johnson Space Center (United States)
- Crew Escape Risk Envelope Assessments for Candidate CEV Launch Systems During Ascent
Freitas, C.¹; Keedy, R.M.¹; Langston, L.J.²
¹Southwest Research Institute (United States); ²NASA - Johnson Space Center (United States)
- Discussion

Session 15: Materials Safety - Part 3

09:00-10:30 (Room 502b)

Chairs: *M. Pedley; K. McGinnis*

- Metal Coated Rapid Prototype Materials for Spaceflight Applications
Funk, G. ; Funk, G.P.
ZIN Technologies (United States)
- Interrelationship of NDE Methodologies Applied to Testing of COPV's
Leifeste, M.¹; Greene, N.²; Forsyth, B.¹; Yoder, T.¹
¹Jacobs Technology/NASA White Sands Test Facility (United States); ²NASA (United States)
- Electrical Arc Ignition Testing of Spacesuit Materials
Harper, S.¹; Smith, S.²; Gallus, T.²; Beeson, H.²
¹NASA (United States); ²NASA White Sands Test Facility (United States)
- Discussion

Panel Session 2: Establishing a Master Program in Aerospace Safety

09:00-10:30 (Room 501b)

Organiser: *Prof. J. Pelton, IAASS Academic Committee Chairman*

10:30 Coffee Break

Session 16: Space Debris Hazard - Part 2

11:00-12:30 (Room 503a)

Chairs: *F. Alby; W. Ailor*

- Micro Particle Launch Capability Development
Rodriguez, K.M. ; Henderson, D.J.
NASA JSC White Sands Test Facility (United States)
- Analytical Formulas for the Meteoroid Distribution in the Near-Earth Space
Meshcheryakov, S.
TSNIIMASH (Russian Federation)
- Protecting Spacecraft Against MMOD Impact Damage: Are Spheres Really the Least Conservative Shape When Used in Impact Testing?
Schonberg, W.¹; Williamsen, J.²
¹University of Missouri-Rolla (United States); ²Institute for Defense Analysis (United States)
- Discussion

Session 17: Safety Risk Management - Part 2

11:00-12:30 (Room 503b)

Chairs: J. Frost; V. Chang

- Operations Procedure Validation as a Risk Mitigation Approach and its Relevance to Safety
Herd, A.¹; Challis, S.²; Peters, K.³
¹Booz Allen Hamilton (Netherlands); ²VEGA (United Kingdom); ³EADS Space (Germany)
- Managing Risk within a Decision Analysis Framework
Dezfuli, H.¹; Youngblood, R.²; Reinert, J.²
¹NASA (United States); ²ISL, Inc. (United States)
- Spaceflight Operations Risk Best Practice - Cross Sectoral Lessons to be Learned?
Herd, A.¹; Bews, P.¹; Gonzalez-Palacio, M.²; Davis, M.²
¹Booz Allen Hamilton (Netherlands); ²Booz Allen Hamilton (United Kingdom)
- Application of Integrated Risk Management to NASAs Constellation Exploration Program
Turner, J.
NASA (United States)

Session 18: Safety on Long Duration Manned Missions - Part 2

11:00-12:30 (Room 502a)

Chairs: S. Sharigyn; M. Ciancone

- Human-in-the-Loop Hazard Approach for Long-Duration Space Exploration
Krolczyk, B.
United Space Alliance, LLC (United States)
- Merits of a Single System for Units of Measure for Complex Space Systems
Barr, S.
The Aerospace Corporation (United States)
- Growth of Plants in Space in Support of Long Duration Missions
Levinskikh, M.¹; Grigoriev, A.I.²; Novikova, N.D.²; Sychev, V.N.²
¹Institute of Bio-Medical problems (Russian Federation); ²RF SRC – Institute of Biomedical Problems (Russian Federation)
- Discussion

Session 19: Safety Critical Software - Part 1

11:00-12:30 (Room 502b)

Chairs: N. Leveson; L. Winzer (TBC)

- How to Guarantee and Improve the Safety of Critical Software
Dubuc, F. ; Dalemagne, D.
Astrium ST (France)
- The New Generation Framework - the Process, Techniques and Tools to take on the New Challenges of Safety-Critical Embedded Software Development
Dion, B.
Esterel Technologies (France)
- The Biggest Risk for Safety of Spacecraft Software
Nomoto, H. ; Nomoto, H.N.
Japan Manned Space Systems (Japan)
- Discussion

Session 20: Launch Range Safety - Part 1

11:00-12:30 (Room 504)

Chairs: *J.-P. Trincherro; J. Haber*

- Determination of Maximum Probable Loss
*Collins, J.D.*¹; *Carbon, S.L.*¹; *Brinkman, C.P.*²
¹ACTA Inc. (United States); ²Federal Aviation Administration (United States)
- Soyuz Launcher from French Guyana: Flight Safety Aspects for an Existing Highly Reliable Launcher
Rongier, I.; *Arnal, M.H.*; *Louvel, S.*
CNES (France)
- Sea Launch Safety Integration Process
Pezeshk, A.
Boeing (United States)
- Discussion

12:30 *Lunch Break*

Session 21: Space Debris Hazard - Part 3

14:00-15:30 (Room 503a)

Chairs: *H. Krag; W. Ailor*

- Impact of Space Debris on the Safety of Space Flight and Insurance Consequences
Buzdugan, M.
Institute of Air & Space Law (Canada)
- Safety Analysis of Spacecraft Shield Configuration under Hypervelocity Impact
*Guanghui, J.*¹; *Jia, G.H.*²
¹Beijing University of Aeronautics and Astronautics (China); ²Beihang University (China)
- Assessment of Orbit Uncertainties for Collision Risk Predictions at ESA
*Krag, H.*¹; *Klinkrad, H.*¹; *Alarcon-Rodriguez, J.R.*²
¹ESA/ESOC (Germany); ²GMV S.A. (Spain)
- Space Debris and Global Safety Challenges
Yakovlev, M.
Tsniimash (Russian Federation)

Session 22: Safety Risk Assessment & Management - Part 1

14:00-15:30 (Room 503b)

Chairs: *W. Vantine; M. Stamatelatos (TBC)*

- Modeling Risk Management in the Development of Space Exploration Systems
Dulac, N.; *Owens, B.D.*; *Leveson, N.G.*
Massachusetts Institute of Technology (United States)
- Probabilistic Risk Assessment for Japanese Experiment Module
*Takada, S.*¹; *Fukatsu, T.*¹; *Takeuchi, N.*¹; *Miki, M.*²; *Yoshikawa, S.*²; *Sato, Y.*³
¹JAXA (Japan); ²JAMSS (Japan); ³Tokyo University of Marine Science and Technology (Japan)
- True Engineering and Safety Partnership Enhances Safety of the Space Shuttle Vehicle (SSV) MSERP
Co-Chair
Duarte, A.D.
NASA Marshall Space Flight Center (United States)
- Discussion

Session 23: Radiation Hazard & Space Weather Forecast

14:00-15:30 (Room 502a)

Chairs: *G. Reitz; F. Cucinotta*

- Radiations in Space and their Biological Effects
Reitz, G.
DLR (Germany)
- Shielding from Cosmic Radiation in Interplanetary Missions
Durante, M.
Federico II University in Naples (Italy)
- Space Radiation Cancer Risk
Cucinotta, F.
NASA-JSC (United States)
- Space Weather Implications for Safe Space Flight
Kunches, J.
NOAA NWS Space Environment Center (United States)

Session 24: Safety Critical Software - Part 2

14:00-15:30 (Room 502b)

Chairs: *L. Winzer; N. Leveson*

- Developing Safety-Critical Software Requirements for Commercial Reusable Launch Vehicles
Murray, D. ; Hardy, T.
Federal Aviation Administration (United States)
- Integrated Total System (ITS) Fault Tree Analysis (FTA)
McIntee, J.
Boeing (United States)
- Filling the Assurance Gap on Complex Electronics
Plastow, R.
Science Applications International Corporation (United States)
- Discussion

Session 25: Launch Range Safety - Part 2

14:00-15:30 (Room 504)

Chairs: *T. Pfitzer; P. Wilde*

- Human Vulnerability to Inert Debris
Haber, J. ; Hasselman, T.
ACTA, Inc (United States)
- Space Vehicle Trajectory Monitoring in Real Time
*Louis, J.*¹; *Vijaykumar, N.*²
¹*CTA / IAE (Brazil);* ²*INPE (Brazil)*
- Launch Range Safety Around the First ISS Refueling European Launch Mission A5ES-ATV
Droz, J. ; Leveau, C. ; Dartigalongue, A.
CNES (France)
- Use of the Julier-Uhlmann Transform for Rapid Computation of Debris Impact Dispersions
Lyle, J.B.
Infoware Systems, Inc. (United States)

15:30 *Coffee Break*

Session 26: Legal and Regulatory Issues - Part 3

16:00-17:30 (Room 503a)

Chairs: J. Pelton; R. Jakhu

- Can we Avoid the Weaponization of Space?
de Montluc, B. ; de Montluc, B.D.M.
Ministry Foreign Affairs/CAP (France)
- An ICAO for Space?
Sgobba, T.
International Association for the Advancement of Space Safety (Netherlands)
- Unique Public Safety Issues Associated with Rocket Shows
Repcheck, R.
U.S. Federal Aviation Administration (United States)
- A Sustainable Development of Passenger Space Travel Requires a Legal Regime on a Level with Civil Aviation Framework
Spada, M.
Università di Roma (Italy)
- Discussion

Session 27: Safety Risk Assessment - Part 2

16:00-17:30 (Room 503b)

Chairs: D. Bohle; Y. Sato (TBC)

- A Fishbone Process for Space Launch Vehicle and Ground Support Systems Hazard Analysis
Iyengar, S.
United Launch Alliance (United States)
- PRA Model Development and Applications in System Safety for the International Space Station
Haines, R.
ARES Corporation (United States)
- The Multi Agent Stress-Strength Model Research for Computer Based Spacecraft Hazard Identification
Sekita, R.¹; Hasegawa, H.¹; Oyatsu, Y.²
¹JAXA (Japan); ²Mitsubishi Research Institute, Inc. (Japan)
- Discussion

Session 28: Spacecraft Re-entry

16:00-17:30 (Room 502a)

Chairs: W. Ailor; H. Krag

- Risk Comparison between Spacecraft Reentry and Meteorite Falls
Lazare, B.; Alby, F.
CNES (France)
- Space Capsule Recovery Trials at Satish Dhawan Space Centre of ISRO
Krishnamurty, V.¹; Narasaiah, N.²; Ravikumar, J.V.N.²
¹Satish Dhawan Space Centre, (India); ²Satish Dhawan Space Centre SHAR ISRO, (India)
- Outstanding Thermo-Physical Problems in Safe Spacecraft Re-Entry: Research, Solutions and Fast Way for Putting the Research into Practice
Litovsky, E.¹; Issoupov, V.¹; Kleiman, J.I.¹; Menn, N.²
¹Integrity Testing Laboratory Inc. (Canada); ²LUMINOS Ltd. (Israel)
- Controlled De-orbit of Delta IV Clipper Stage for DMSP-17 Mission
Landa, M.
The Aerospace Corporation (United States)

Session 29: Space Material Safety - Part 1

16:00-17:30 (Room 502b)

Chairs: *M. Pedley; S. Tachiara*

- An Improved Process for Assessing Reactivity of Non-Metals in Aerospace Fluids
*Rathgeber, K.*¹; *Hornung, S.*²; *Greene, B.*¹; *Maes, M.*³
¹*Jacobs Technology, Inc. (United States);* ²*Muniz Engineering (United States);* ³*NASA White Sands Test Facility (United States)*
- Separating Physical Variability from Knowledge Uncertainty: Approaches and Critical Implications to Spacecraft Material Reliability
Vesely, W.
NASA (United States)
- International Space Station Materials - Selected Lessons Learned
Golden, J. ; *Golden, J.L.*
Boeing (United States)
- Polymeric Materials for Spacecrafts with Nuclear Reactor. Requirements for Radiation Tests. Russian National Standard
Briskman, B.
Skobel'syn Institute of Nuclear Physics (Russian Federation)

Session 30: Future Launch Range Safety

16:00-17:30 (Room 504)

Chairs: *P. Wilde; J.-P. Trinchero*

- Air Traffic Considerations for Future Spaceports
Murray, D. ; *Ellis, R.*
Federal Aviation Administration (United States)
- Status and Review of Launch Vehicle Sonic Boom Environmental Impacts
*Griffice, C.*¹; *Wang, J.C.T.*¹; *Edwards, J.R.*²; *Hashad, A.A.*²; *Moody, D.M.*¹
¹*The Aerospace Corporation (United States);* ²*Space and Missile Systems Center (United States)*
- Prediction of Explosive Hazard Potential for Reusable Launch Vehicles
Freitas, C. ; *Chocron, S.*
Southwest Research Institute (United States)
- An Analysis of Two Radar Data Filtering Algorithms for Rocket Tracking
Rosa, M.
Institute for Advanced Studies - IEAv (Brazil)

19:30 Conference Gala Dinner & Awards Ceremony
The Drake Hotel

Wednesday, May 16, 2007

Session 31: Payload Safety

09:00-10:30 (Room 503a)

Chairs: A. Larsen; M. Ciancone

- Payload Integrated Safety Aspects
Heller, T.
EADS-Astrium, Space Transportation (Germany)
- Flight Safety for the Fourth Hubble Space Telescope Servicing Mission
Dedalis, R.¹; Mitchell, P.²
¹NASA/Goddard Space Flight Center (United States); ²SAIC (United States)
- Certification Process for Commercial Batteries for Payloads
Jeevarajan, J.
NASA-Johnson Space Center (United States)
- Activities of System Safety for Satellite Developments in Mitsubishi Electric Corporation
Mori, Y.¹; Kiyokawa, T.¹; Gonai, T.¹; Yamazaki, H.²
¹Mitsubishi Electric Corporation (Japan); ²Mitsubishi Electric Engineering Company (Japan)

Session 32: Safety Risk Assessment - Part 3

09:00-10:30 (Room 503b)

Chairs: J. Fragola; N. Takeuchi

- Applying the Concept of Reliability-Adaptive Systems to Space Systems Safety and Reliability
Rakowsky, U.K.
University of Wuppertal (Germany)
- Development of a Campaign Risk Model to Illuminate Safety Issues Related to Propulsion Options for NASA's ISS and Lunar Programs
Putney, B. ; Fragola, J.R.
Valador (United States)
- On-Ground Risk Estimation for Scientific Balloons Flights in France
Dargelos, N.
CNES (France)
- Valuing and Aggregating Evidence in Assessing Mission Alternatives: an Application of Evidence Evaluation
Vesely, W.
NASA (United States)

Session 33: Ground Safety

09:00-10:30 (Room 502a)

Chairs: P. Kirkpatrick; J.-P. Trincherro

- Analytical Modeling of LOX/LH2 and LOX/RP1 Explosions (Application to Ariane 5 and Soyuz Ground Safety)
Bavandi, A.
AOES (Netherlands)
- Propellant Analysis and Distillation Unit Design
Barragan, M.
Jacobs Engineering/White Sands Test Facility (United States)
- Training the Crew for Safety/Safety of Crew Training
Marciaq, J.-B.
ESA/EAC European Astronaut Centre (Germany)
- Developing Strategies for Improved Information Access by Ground Operations Technicians
Caldwell, B.S.; Byrd, K.S.
Purdue University (United States)
- Discussion

Session 34: Space Material Safety - Part 2

09:00-10:30 (Room 502b)

Chairs: D. Griffin; A. de Rooj

- NASA-STD-(I)-6016, Standard Materials and Processes Requirements for Spacecraft
Pedley, M.¹; Griffin, D.²
¹NASA Johnson Space Center (United States); ²NASA Marshall Space Flight Center (United States)
- Evaluation Test Result of the Fire Containment Capability of Container
Tachihara, S.¹; Takeuchi, N.¹; Matsuo, Y.²
¹JAXA (Japan); ²JAMSS (Japan)
- Mitigating and Preventing the Growth of Tin and other Metal Whiskers on Critical Hardware
Barr, S.
The Aerospace Corporation (United States)
- Guide for Performing Oxygen Compatibility Assessments on Oxygen Components and Systems
Stoltzfus, J.M.; Shoffstall, M.; Rosales, K.
NASA JSC White Sands Test Facility (United States)

Session 35: Spacecraft Re-entry - Part 1

09:00-10:30 (Room 504)

Chairs: T. Lips; F. Alby

- Ariane-5 EPC Re-entry - A Comparison of Observations and SCARAB Simulation Results
Lips, T.¹; Fritsche, B.¹; Koppenwallner, G.¹; Leveau, C.²
¹Hypersonic Technology Goettingen (Germany); ²Centre National d'Etudes Spatiales, CNES (France)
- Re-Entry Survivability Evaluations of Reaction Wheel Designs
Bialke, B.
Goodrich Corporation-Ithaco Space Systems (United States)
- A Moderate Risk, Low Mass Solution to De-Orbit the Hubble Space Telescope Using an Electro-Dynamic Tether
Abrams, J.
ARES Corporation (United States)
- Discussion

Panel Session 3: Need for an International Civil Space Organisation?

09:00-10:30 (Room 501b)

Organiser: N. Bahr, Chairman IAASS Working Group "An ICAO for Space?"

10:30 Coffee Break

Session 36: Nuclear Safety for Space Systems

11:00-12:30 (Room 503a)

Chairs: M. Stamatelatos (TBC); M. Frank (TBC)

- Criticality Safety of Space Nuclear Power Systems at all Stages of their Operation
Dmitry, P.; Ponomarev-Stepnoi, N.N.; Glushkov, E.S.
RRC Kurchatov Institute, (Russian Federation)
- Reactor Design Considerations for Safe Launch and Operations
Flanagan, G.¹; Flanagan, G.F.²
¹Oak Ridge Ridge National Laboratory (ORNL) (United States); ²Oak Ridge National Laboratory (United States)
- Inadvertent Earth Reentry Breakup Analysis for the New Horizons Mission
Ling, L.¹; Salama, A.²; Ivanov, M.²; McRonal, A.³
¹NASA Johnson Space Center (United States); ²Jet Propulsion Laboratory (United States); ³Global Aerospace Corporation (United States)

- A Historical Perspective on Space Nuclear Flight Safety Requirements
Hale, R.
Oak Ridge National Laboratory (United States)

Session 37: Safety Risk Assessment - Part 4

11:00-12:30 (Room 503b)

Chairs: J. Fragola; T. Maniwa

- Relative Risk Evaluations of Alternative Spacecraft Designs
Vesely, W.
NASA (United States)
- Instantaneous Reliability and Ground Risk Evaluation of a Rocket Launcher with Blind and Ballistic Phases
Baudet, J.-P.¹; Panicucci, M.²
¹*Mirespace (France)*; ²*ESA/ESRIN (Italy)*
- Public Interest and Understanding of Space Safety
Atkinson, N.
Free-lance Writer/Journalist (United States)
- Discussion

Session 38: Launch Range Safety

11:00-12:30 (Room 504)

Chairs: J. Haber; C. Moura

- Explosion Risk Reduction of Launch and Spacecraft Propulsion Systems
Manha, W.
Jacobs Sverdrup (United States)
- Common Risk Criteria for US National Ranges - An Update
Cather, C.¹; Haber, J.²
¹*United States Air Force 30th Space Wing Safety Office (United States)*; ²*ACTA, Inc. (United States)*
- Range Safety Requirements and Methods for Unguided Suborbital Rocket Launches
Wilde, P.
Acta Inc. (United States)
- The Economic Health of The Commercial Space Launch Industry and its Affects on The Implementation of International Safety Standards
Hayward Draper, C.
ACTA Inc. (United States)

Session 39: Space Material Safety - Part 4

11:00-12:30 (Room 502b)

Chairs: S. Tachihara; K. McGinnis

- Flammability Testing of Constellation Materials
Hirsch, D.¹; Williams, J.¹; Harper, S.¹; Pedley, M.²
¹*NASA White Sands Test Facility (United States)*; ²*NASA Johnson Space Center (United States)*
- Fungal Degradants of Space Polymeric Materials: Environmental Concerns
Kurakov, A.V.¹; Novikova, N.D.²; Afrikian, E.G.³
¹*Moscow Lomonosov State (Russian Federation)*; ²*Institute for Biomedical Problems (Russian Federation)*; ³*State Microbial Depository Center, NAS of Armenia (Armenia)*
- Safely Containing Frangible Materials Used in Space Flight Equipment
Bernstein, K.
NASA/JSC (United States)
- Discussion

12:30 *Lunch Break*

Session 40: Spacecraft Re-entry - Part 2

11:00-12:30 (Room 502a)

Chairs: *G. Ortega (TBC); T. Lips*

- Vehicle Breakup/Burnup Analysis for an Anomalous Stardust Entry in the Earth Return Phase
Ivanov, M. ; *Ling, L.M.* ; *Salama, A.*
Jet Propulsion Laboratory (United States)
- Re-entry Risk Assessment for Launchers - Development of the New SCARAB 3.1L
*Lips, T.*¹; *Fritsche, B.*¹; *Homeister, M.*¹; *Koppenwallner, G.*¹; *Klinkrad, H.*²; *Toussaint, M.*³
¹*Hypersonic Technology Goettingen (Germany);* ²*European Space Agency, ESA/ESOC (Germany);*
³*European Space Agency, ESA/HQ (France)*
- SPEM Experiment: Design of an Inflatable Re-entry Capsule
Giovangrossi, G. ; *Andreozzi, D.* ; *Cioeta, M.* ; *Piccolo, F.* ; *Fedeli, P.*
Aero Sekur S.p.A. (Italy)
- Discussion

Panel Session 4: Radiation Hazard and Prospect of Human Long Duration Missions

11:00-12:30 (Room 501b)

Organiser: *G. Reitz, DLR*

12:30 *Lunch Break*

Plenary Session – Part 1

14:00-15:00 (Room 504)

Chair: *P.G. Smith, A. Soons*

Building Safe Commercial Human Spaceflight: the Anousheh Ansari Vision

Ansari, A. (TBC) (United States)

15:00 *Coffee Break*

Plenary Session – Part 2

15:30-16:30 (Room 504)

- Conference wrap-up: Conference Co-Chairmen
- Conclusions and Announcements: IAASS President