Conference Agenda

10th IAASS Conference - Making Safety Happen

Date: Wednesday, 15/May/2019

8:30am - 10:30am **P1: Plenary Session 1**

10:30am - 11:00am **Coffee Break**

11:00am - 12:30pm **S-01: Re-entry Safety** - I

Effect of Latitude Bias in Entry Angle on Ground Casualty Risk from Naturally Decaying Space Objects

Chris Ostrom
NASA Orbital Debris Program Office / HX5, United States of America

Seasonal- and Beta-Angle-Dependent Latitude Bias Variations in Natural Decays
John Bartlett Bacon
NASA, United States of America

Probabilistic casualty risk assessment and labeling for the re-entry of spacecraft components
Tobias Lips, Patrik Kärräng
HTG GmbH, Germany

Update of the Ariane 5 EPC test case with the Fragmentation and survivability tool suite of ArianeGroup
Célia Finzi, Grégory Pinaud, Charles Bertorello, Jean-Marc Bouilly, Laurent Chevalier
ARIANEGROUP, France

11:00am - 12:30pm **S-02: Human Performance for Safety & Organizational Culture** - I

Capability Considerations for Enhancing Safety on Long Duration Manned Missions: Insights from a Technical Interchange Meeting on Autonomous Crew Operations
Shu-Chieh Wu[1,2], Alonso H. Vera[2]
[1]San Jose State University, United States of America; [2]NASA Ames Research Center, United States of America

Addressing Rapid Mobilization and Evacuation During Large-Group Commercial Spaceflight Emergencies
Victor Armando Kitmanyen
University of Houston, USA

Fatigue Management for Risk Reduction
David Fuller
NASA, United States of America

Safety on site - Operating a test facility for a Flight Stage
Michael Dommers, Andreas Haberzettl
DLR, Germany

11:00am - 12:30pm **S-03: Nuclear Space Safety**

OVERVIEW OF THE ISSUES RELATED TO THE USE OF RADIOISOTOPE POWER SYSTEMS IN EUROPEAN SPACE MISSIONS

Christophe Fongarland[1], Cédric Lemarié[1], Laurent Jourdainne[2], Alessandra Barco[3], Richard Ambrosi[3], Keith Stephenson[4]
[1]ArianeGroup, France; [2]Arianespace, France; [3]University of Leicester - Dept. of Physics & Astronomy, United Kingdom; [4]European Space Agency - ESTEC TEC-EP, The Netherlands

Reliability Considerations for Radioisotope Power Systems

Christopher Stanley Rutter Matthes
NASA Jet Propulsion Laboratory, United States of America

Modeling and Simulation of Particle Size Distributions in Plutonium Oxide Due to Mechanical Insult

Ryan John Terpsma, Stewart Silling
Sandia National Laboratories, United States of America

An Opinion: RADIOISOTOPE MATERIAL LAUNCH APPROVAL REQUIREMENTS

Mark Glissman
USAF, United States of America

Risk Integration and Uncertainty Evaluation Process of the Mars 2020 Launch

Curtis Smith[1], Kurt Vedros[1], James Knudsen[1], Don Marksberry[2], Robin Sullivan[3], James Rogers[4]
[1]Idaho National Laboratory, United States of America; [2]Nuclear Regulatory Commission, United States of America; [3]Pacific Northwest National Laboratory, United States of America; [4]National Aeronautics and Space Administration, United States of America

11:00am - 12:30pm **S-04: Panel Session**

Panel on Space Traffic Management

Mark Skinner
The Aerospace Corporation, United States of America

12:30pm - 2:00pm **Lunch Break**

2:00pm - 3:30pm **S-05: Space Debris** - I

A Handbook for Post-Mission Disposal of Satellites Less Than 100 kg

Darren S McKnight
IAI, United States of America

The Analysis and Study on the Sudden-happened Events Correlated with Space Debris

Ronglan Wang
National Space Science Center, Chinese Academy of Sciences, China, People's Republic of

D-Orbit's decommissioning technologies as an effective mechanism enabling compliance with current and future space debris mitigation requirements and standards

Catherine Doldirina, Stefano Antonetti, Luca Rossettini, Lorenzo Ferrario D-Orbit SpA, Italy

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A Clearer View of Orbital Debris

Joseph Anthony Carroll
PlaneWave Instruments, United States of America

Enhanced Space Safety by Active Removal of Dead LEO Satellites and Debris

Jerome Pearson[1], Joseph A. Carroll[2], Eugene M. Levin[3]
[1]Star Technology and Research, Inc., United States of America; [2]Tether Applications, Inc.; [3]Electrodynamic Technologies

2:00pm - 3:30pm S-06: Regulations & Standards - I

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Outer Space SARPs: A Mechanism for Implementation of Space Safety Standards

Gilles Doucet
Spectrum Space Security Inc., Canada

Space Safety Law and the Guardians of the Galaxy: the UK Perspective

Thomas Alexander Walker
Blake Morgan LLP (law firm), United Kingdom

Application of the French Space Operation Act on the future European Launcher Ariane 6

Nathalie Dias
ArianeGroup, France

2:00pm - 3:30pm S-07: Designing Safety - I

Safety Considerations for SPIcDER: Spacesuit Integrated Carbon Nanotube Dust Ejection/Removal System

Kavya Manyapu[1], Leora Peltz[2], Pablo De Leon[3]
[1]The Boeing Company, United States of America; [2]The Boeing Company, United States of America; [3]University of North Dakota

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Development of a New Method for Evaluation of Materials Flammability in Space by FLARE Project

Masao Kikuchi[1], Yasuyuki Hanaki[1], Tomoyuki Nukui[1], Makiko Fukuda[2], Yuji Kan[1], Yasuhiro Nakamura[1], Tetsuya Sakashita[1], Shuhei Takahashi[3], Osamu Fujita[4]
[1]Japan Aerospace Exploration Agency, Japan; [2]Intec Co., Ltd., Japan; [3]Gifu University, Japan; [4]Hokkaido University, Japan

Investigation of broom-straw fracture behavior of aluminum alloy 2024 debris recovered from Space Shuttle _Columbia_

Ngozi C. Ubani Ochoa, Darren M. Cone, Stephen W. Stafford, John D. Olivas
Center for the Advancement of Space Safety and Mission Assurance Research (CASSMAR), The University of Texas at El Paso, United States of America

Hypersonic Vehicle Safety Review (title TBC)

Khooshboo Dani, Swapnil Surdi, Cameron Lorek, Michael Kezirian University of Southern California, United States of America

2:00pm - 3:30pm **S-08: International Cooperation**
Part 1: ID160, + Panel Discussion (ID166) Part 2: ID 216

The Need to Cooperate with China on Space Emergencies Capabilities

Tommaso Sgobba
IAASS, The Netherlands,

Panel on International Space Flight Safety Cooperation

Gina Galasso
The Aerospace Corporation, United States of America

3:30pm - 4:00pm **Coffee Break**

4:00pm - 6:00pm **S-09: Risk Assessment & Management**

A Method for Tracking and Communicating Aggregate Risk Through the Use of Model-Based Systems Engineering (MBSE)/Model-Based Mission Assurance (MBMA) Tools

Scott Darpel[1], Tim Ferlin[1], Sean Beckman[1], Maria Havenhill[1], Edith Parot[1], Kathy Harcula[2] [1]NASA, United States of America; [2]Bastion Technologies

"MAKING SAFETY HAPPEN" THROUGH PROBABILISTIC RISK ASSESSMENT AT NASA

Roger L. Boyer[1], Teri L. Hamlin[1], Warren C. Grant[1], Michael A. Stewart[1], Robert B. Cross[1], James H. Rogers[2], Alfred S. Berrios[3]
[1]NASA - Johnson Space Center, United States of America; [2]NASA - Marshall Space Flight Center, United States of America; [3]NASA - KennedySpace Center, United States of America

Dynamic Probabilistic Risk Modeling for Optimizing Human Safety for Lunar Surface Systems

Jacqueline Machesky[1,3], Chris Mattenberger[1], Donovan Mathias[2]
[1]Science and Technology Corporation, NASA Ames Research Cente, United States; [2]NASA Ames Research Center, United States; [3]Stanford University, Stanford, CA 94305, USA

MBSE methodology to support a Safety and Reliability Assessment of a Thermal Control System of a Hypersonic Transportation Vehicle

Roberta Fusaro, Nicole Viola, Laura Babetto
Politecnico di Torino, Italy.

Main Challenges and Goals of the H2020 STRATOFLY Project

Roberta Fusaro, Nicole Viola
Politecnico di Torino, Italy.

4:00pm - 6:00pm **S-10: Launch Safety** - I

Rafael's TRSAT development update

Ronen Ingbir, Nave Ben-Yakov, Dima Kanevsky, Meir Cohen, Mark {Moty} Harmats, Noga Tzviel
Rafael, Israel

Safety Challenges for Commercial Launch Operators

Jerry Mark Haber
Acta LLC, United States of America

Trajectory Innovative Real-time Equipment for Space Intelligent Anomalies Surveillance using Supervised Machine Learning (TIRESIAS)

Victoria Da-Poian[1], Gérald Grucker[2]
[1]ISAE Supaero, Toulouse, France; [2]CNES CSG Kourou, Guyane Française

Levels of Rigor for Launch and Reentry Safety Analysis

Erik W F Larson, Angela M. Linn-Nelson, Jerry Haber
ACTA, LLC, United States of America

Improved Correlation of Uncertainty within Trajectory Sets

Tyler Johannes Gras, Erik W.F. Larson, Elliot James Porterfield ACTA LLC, United States of America

4:00pm - 6:00pm **S-11A: Panel Session**
Case Study Discussion: Hypothetical Commercial Space Accident in the UK Chairs: Tom Walker, Lucien Rapp

4:00pm - 6:00pm **S-11: Space Traffic Control**

The Global Risk Continuum (GRC) - What Should Keep You Up at Night
Darren S McKnight[1], John A Macdonald[1], Joseph Pelton[2], Rohit Arora[1], Peter Martinez[3], Chris Kunstadter[4]
[1]IAI; [2]Independent Consultant; [3]Secure World Foundation; [4]AXA

RISK, SAFETY AND RELIABILITY IN SATELLITE OPERATIONS: THE INTELLECTUAL STRUCTURE OF A RESEARCH FIELD
Riccardo Patriarca, Francesco Costantino, Giulio Di Gravio Sapienza University of Rome, Italy

Improvement of Formation Flying System based on a bottom-up approach RAMS analysis
Marta Fernández Campo, Isabel Bachiller Martínez, Juan Antonio Béjar Romero GMV Aerospace and Defense S.A, Spain

The First On-Orbit Demonstration of an ELROI Satellite License Plate
David M. Palmer, Rebecca M. Holmes, Charles T. Weaver Los Alamos National Laboratory, United States of America

Date: Thursday, 16/May/2019

8:30am - 10:30am **S-12: Design of Systems for Safe Launch Operations**

Design of systems for safe launch operations
Hugh Charles Dischinger. Jr
NASA/MSFC, United States of America

Human Factors Design of Ground Launch Systems (Abstract TBD)
Damon Stambolian
NASA Kennedy Space Center, United States

Human Factors in Ground Processing: Lessons from Aircraft Maintenance
Alan Neville Hobbs
SJSU Foundation at NASA Ames Research Center, United States of America

NASA Marshall Space Flight Center Tools for Human Factors Engineering Assessments for Safe Space Launch System Worksites
Tanya Cole Andrews
NASA Marshall Space Flight Center, United States of America

8:30am - 10:30am **S-13: Re-entry Safety – II**

Demisability of Various Reinforced Polymer Components of Reentering Orbital Debris: Phase I Test Results

Benton Robb Greene[1], Christopher M Sanchez[2]

[1]Jacobs JETS Contract, NASA Johnson Space Center, United States of America
[2]Applied Research Associates, Inc., United States of America

Investigation of material response to atmospheric re-entry exposure of sub-structural Ti-6Al-4V components recovered from Space Shuttle _Columbia_

Ngozi C. Ubani Ochoa, Arlene C. Smith, Darren M. Cone, Stephen W. Stafford, John D. Olivas
Center for the Advancement of Space Safety and Mission Assurance Research (CASSMAR), The University of Texas at El Paso, United States of America

DEBRISK V3 : CNES Tool evolutions for re-entry risk analysis

Pierre Omaly
CNES, France

HAZARDS OF REENTRY DISPOSAL OF SATELLITES FROM LARGE CONSTELLATIONS

William H Ailor
The Aerospace Corpoation, United States of America

8:30am - 10:30am S-14A: Designing Safety II

A Risk-Based Approach for Implementing Safety and Mission Assurance when Using Commercial Heritage in Human-Rated Systems

Timothy Joseph Ferlin, Scott Darpel, Maria Havenhill
NASA, United States of America

Evolution of crew safety criteria for future manned space transportation systems

Aline Decadi
HE Space at European Space Agency, France

Human error analysis (HEA) for human-rated space systems. What is it, and how can it be done?

John O'Hara[1], Alan Hobbs[2], Cynthia Null[3], Charles Dischinger[3]
[1]Brookhaven National Laboratory; [2]SJSU Foundation at NASA Ames Research Center; [3]National Aeronautics and Space Administration

NASA Marshall Space Flight Center Human Factors Engineering Analysis of Various Hatch Sizes

Tanya Cole Andrews, Rebecca Stewart, Walter Deitzler
NASA Marshall Space Flight Center, United States of America

Challenges and Opportunities of International Cooperation for Safety & Mission Assurance (SMA) on the European Service Module (ESM) of the Orion Program

Michael Ciancone[1], Richard Chase[2], Horst Tjaden[3], Brian VanGenderen[4], Mark Hyatt[1]
[1]NASA, United States of America; [2]European Space Research and Technology Centre, The Netherlands; [3]Airbus Defence and Space, Germany; [4]Lockheed Martin, United Stated of America

8:30am - 10:30am S-14: Space Traffic Control – II

Space Traffic and Frequency Management and Control in the New Space Environment

Joseph N. Pelton
IAASS, Executive Board

The launch collision avoidance analysis (LCOLA) in JAXA

Shinichi Wada, Ryotaro Kaneko, Hajime Taguchi, Kazutomi Ishihara
Japan Aerospace Exploration Agency, Japan

Launch Collision Avoidance Analysis for Korea Space Launch Vehicle

Chang Su Park
Korea Aerospace Research Institute, Republic of Korea

10:30am - 11:00am **Coffee Break**

11:00am - 1:00pm **S-15: Designing Safety III**

Trends in Human Spaceflight: Failure Tolerance, High Reliability and Correlated Failure History

Carrie L. Green[1], Maria A. Havenhill[2], John O. Bobanga[3], Deboshri Sadhukhan[4]
[1]NASA, United States of America; [2]NASA, United States of America; [3]NASA, United States of America; [4]NASA, United States of America

Safety Assessment of Suborbital Vehicles

Marcel Lariviere
ISSF Graduate Student Fellowship

Hypersonic Reusable Transportation Systems: a way to reduce risk to access Low Earth Orbits

Roberta Fusaro, Nicole Viola, Valeria Vercella
Politecnico di Torino, Italy

E-Nose: Measuring Surface Microbial Contamination and Oxidative Stress of Cosmonauts - Results and Future Applications

Jan Grosser[1], Joachim Lenic[1], Sergey Kharin[2], Dmitry Tsarkov[2], Yuri Smirnov[2], Natalia Novikova[2], Lana Moukhamedieva[2], Michael Dolch[3], Andrei Kornienko[4], Robin Nitzer[4], Peter Roth[4], Ulrich Reidt[4], Andreas Helwig[4], Viktor Fetter[4], Thomas Hummel[4]
[1]German Aerospace Center (DLR), Germany; [2]Institute of Biomedical Problems (IBMP), Russian Academy of Sciences (RAS), Russia; [3]Hospital of the Ludwig-Maximilians-University, Germany; [4]Airbus Defence and Space, Germany

STRATOFLY Academy: Inspire Young Professionals and Get Inspired by New Ideas

Roberta Fusaro, Nicole Viola
Politecnico di Torino, Italy.

11:00am - 1:00pm **S-16: Launch Safety-II**

Launch Approval Using the Safety Case Approach

Tom Pfitzer, Katie Byers, Megan Stroud
APT Research, Inc., United States of America

11:00am - 1:00pm	**S-17: Re-entry Safety - III**

Rebuilding of destructive hypersonic tests on honeycomb sandwich panels with PAMPERO
Julien Annaloro[1], Vincent Rivola[2], Martin Spel[2], Sergey Drozdov[3], Stéphane Galera[4], Pierre Omaly[1]
[1]CNES, France; [2]RTECH, France; [3]TSAGI, Russia; [4]ALTRAN, France

An Engineering Model of the Consequences of Debris Collisions on Structures
Paul D. Wilde, Sean Stapf
Federal Aviation Administration, United States of America

High-fidelity Spacecraft-oriented Re-entry Safety Analysis Code of JAXA : LS-DARC
Keiichiro Fujimoto, Hideyo Negishi, Toshiaki Daibo, Nobuyuki Iizuka, Ryuzo Shimizu, Koichi Okita
Japan Aerospace Exploration Agency, Japan

On the re-entry of large artificial space objects and resulting footprint estimation
Stijn Jan Jo Lemmens, Silvia Sanvido
European Space Agency

11:00am - 1:00pm	**S-18: Laws, Regulations & Standards – II**

The new safety review system about launching rocket in Japan
Hiroaki Sakai
JAXA, Japan

The International Civil Aviation Organization (ICAO) as the competent international organization for safety and security issues in suborbital flights
Georgia Maria {Yolanda} Kalogirou
McGill University, Canada

Overview of Act on Launching of Spacecraft, etc. and Control of Spacecraft in Japan
Tetsuya Morimoto[1], Toru Hara[1], Gaku Saito[1], Shuji Yamaguchi[1], Masami Miki[2], Yuki Fukuchi[2], Daiki Tanaka[2], Masako Kikuchi[2], Koji Oga[2]
[1]National Space Policy Secretariat (NSPS) Cabinet Office (CAO), Government of Japan; [2]Japan Manned Space Systems Corporation (JAMSS), Japan

The Case for A Space Safety Institute
Tommaso Sgobba
IAASS, Netherlands, The

1:00pm - 2:30pm	**Lunch Break**
2:30pm - 4:00pm	**P2: Plenary Session - Keynote Addresses**
4:00pm - 4:30pm	**Coffee Break**
4:30pm - 6:00pm	**S-19: Space Debris – II**

A study on safety requirement for on-orbit servicing missions
Hiroki Onodera
JAXA, Japan

Modular Damage Detection for Expandable and Inflatable Structures
Mark E Lewis[1], Tracy L Gibson[2], Pedro J Medelius[3]
[1]NASA Kennedy Space Center, United States of America; [2]Southeastern Universities Research Association; [3]ASRC Federal Space and Defense

Characterization of Aerospace Materials Related to Orbital Debris Using Reflectance Spectroscopy
Jacqueline Andrea Reyes, Darren Cone
The University of Texas at El Paso, United States of America

Reusability and GreenSpace Scenarios for Launcher industry
Stephane Heinrich ALTRAN,
France

4:30pm - 6:00pm **S-20: Launch Safety III**

A Safe Cost effective approach for testing Ariane 6 Flight Software
Philippe Gast, Cyrille Pierre
Ariane Group, France

The development of Improved Flight Safety Analysis System for NURI Test Vehicle
Kyusung Choi[1], Hyungseok Sim[2], Sangyeon Cho[3]
[1]KARI, Korea, Republic of (South Korea); [2]KARI, Korea, Republic of (South Korea); [3]KARI, Korea, Republic of (South Korea)

INNOVATIVE FLIGHT SAFETY STRATEGIES FOR NEW LAUNCHER VEHICLES
Alexandra Martinez Torio
CNES, France

Flight Abort Criteria to Ensure Public Safety during Commercial Launch and Reentry Operations in the US
Paul D. Wilde, Tom Ricketson
Federal Aviation Administration, United States of America

4:30pm - 6:00pm **S-21: Designing Safety – IV**

In-situ meso-scopic modeling and analysis of composite overwrap in COPVs
Jiakun Liu
Cornell University, United States of America

Next Generation Methods for Non-Destructive Testing of Spaceflight Hardware
Michael T. Kezirian
Global Innovations, Inc, United States of America

Safety Considerations Unique to Composite LOX Tanks
Scott Christopher Forth[1], Eric Wostenberg[2], Michael Holt[3]
[1]The Spaceship Company, United States of America; [2]Virgin Orbit, United States of America; [3]Virgin Orbit, United States of America

Integrated Safety Tools for NASA Human Space Flight Programs
Holly L. Brosnahan[2], Matt R. Guibert[1], Kevin McMillin[1], Christian D. Ratterman[1], Matthew D. Sharpe[1], Elizabeth Wagstaff[1]
[1]NASA Ames Research Center, United States of America; [2]San Jose State University Foundation, United States of America

Failure Modes and Effects Analysis (FMEA) and the Design Influence of Space Launch Vehicle Avionics Systems
Mohammad Izeddin Al Hassan, Paul Thomas Britton, Robert Wayne Patlovany NASA, United States of America

4:30pm - 6:00pm **S-22: Space Traffic Control - III**

Trending Analysis of Historical Conjunction Data Messages
Daniel Moomey, Austin Potter, John Chris Mattchet
Air Force Safety Center, United States of America

Solution of Long-Coast Re-entry COLA Problems with COLA Gap Methods
Alan B. Jenkin, John P. McVey, Glenn E. Peterson
The Aerospace Corporation, United States of America

Integrating Air and Space Traffic Management: Some Safety and Regulatory Issues
Sanat Kaul
International Foundation for Aviation, Aerospace & Development, India

Space Data Integrator
Ryan Frodge[1], Daniel Murray[2]
[1]Virginia Polytechnic Institute and State University, United States of America; [2]Federal Aviation Administration, United States of America

Date: Friday, 17/May/2019

9:00am - 10:30am **S-23: Space Traffic Control-IV**

Reducing Outer Space Insecurities: The Case for a United Nations Space Situational Awareness (SSA) Architecture
Kiran Krishnan Nair
McGill University, Canada

Probability Evaluation by Unscented Transform in Launch Collision Avoidance Analysis between Launcher and manned spacecraft and operation results
Ryotaro Kaneko, Shinich Wada, Hajime Taguchi, Kazutomi Ishihara Japan Aerospace Exploration Agency, Japan

Flight Safety Concepts for EOLE
Vincent Jean Marc Bertrand-Noel
CNES - Guiana Space Centre, French Guiana

9:00am - 10:30am **S-24: Re-entry Safety – IV**

SecSWIM – Where safety meets security
Frank Morlang
German Aerospace Center (DLR), Germany

Development of new analytical models for pressure and heat flux distribution on space debris afterbodies
Vincent Drouet[1,2], Ysolde Prévreaud[1], Jean-Marc Moschetta[1,2], Julien Annaloro[3] [1]ONERA, France; [2]ISAE, France; [3]CNES, France

MONITORING THE ORBITAL DECAY OF THE CHINESE SPACE STATION TIANGONG-1 FROM THE LOSS OF CONTROL UNTIL THE RE-ENTRY INTO THE EARTH'S ATMOSPHERE
Carmen Pardini, Luciano Anselmo
Space Flight Dynamics Laboratory, ISTI-CNR

9:00am - 10:30am **S-25A: Panel**

- **Design-Based Safe Operable Metrics for Earth Regime RPO**
- **Global Risk Factors--Comparing Space Threats with Earthquakes, Pandemics and other Earth-based Threats**

9:00am - 10:30am **S-25: Designing Safety – V**

Defining a Safe Reusable Cislunar Transportation Architecture
Dallas Bienhoff
Cislunar Space Development Company, LLC, United States of America

Overcoming challenges of using COTS Electrical Devices in Space
James Allen Runnells

HX5, United States of America

Flat-H Redundant Frangible Joint Design Evolution 2018: Feasibility Study Conclusions

Jacob French, Chris Brown, Andrew Benjamin, Todd Hinkel, Thomas Diegelman
NASA - JSC, United States of America

Application and Evaluation of IAASS-SSI-1700 Standards for a Liquid Rocket Laboratory

Cameron Lorek[1], Eric Perry[1], Michael Kezirian[2]
[1]University of Southern California, United States of America; [2]International Space Safety Foundation

10:30am - 11:00am	**Coffee Break**
11:00am - 1:00pm	**S-26: Space Hazards**

Should Lack of Imminence Affect Planetary Defense Policy?

Nahum Melamed[1], Avishai Melamed[2]
[1]The Aerospace Corporation, United States of America; [2]University of California, Sun Diego, California

International Space Station Spacecraft Charging Hazards: Hazard identification, management, and control methodologies, with possible applications to human spaceflight beyond LEO

Steven Koontz[1], Terri Castillo[1], William Hartman[2], Schmidl William[2], Megan Haught[1], Gary Duncan[1], Benjamin Gingras[2], Jerry Vera[2]
[1]NASA Johnson Space Center/ES4, United States of America; [2]The Boeing Company, Houston, Texas, United States of America

Roadmaps for Space Environment Engineering and Science Applications

Paul O'Brien, Josef Koller
The Aerospace Corporation, United States of America

Space Weather: Big & Small - A Continuous Risk

Scott William McIntosh
National Center for Atmospheric Research, United States of America

11:00am - 1:00pm	**S-27: Human Performance for Safety & Organizational Culture**

SAFETY REGULATIONS AND STANDARDS FOR THE ERGONOMICS OF COMMERCIAL NEARSPACE AND SUBORBITAL AIRCRAFTS REFERRING TO PRIVATE TRANSPORTATION MODELS

Norul Ridzuan Zakaria[1], Anass Hanafi[2], Ivan Cuzzi[2], Khairul Azman Hasran[3], Mohd Khairul Ikram Shukri[3], Ahmadzaidi Karim[3], Mohd Amzari Abas[4], Muhammad Zaidi Mohtar[4], Abdul Rashid Ahmad[4], Kamarul Azhar Mohd Yatim[5], Jalaludin Abu[6], Saharudin Zakaria[6], Airon Shah Najmudin[6]
[1]SOLVES, Italy; [2]Al-Biruni International Space School, Italy; [3]SkyE, Malaysia; [4]REMPIT, Malaysia; [5]FINAS, Malaysia; [6]SOLVES, Malaysia

Effect of Space Environment on Human Performance and Safety

Diana L. DeMott
SAIC, United States of America

TIME PERCEPTION AND DESYNCHRONIZATION OF BIOLOGICAL CLOCK DURING ANALOG MISSIONS IN LUNARES HABITAT IN POLAND

Agata Maria Kołodziejczyk
Analog Astronaut Training Center, Poland

THE FINE MOTOR SKILLS AND COGNITION TEST BATTERIES: NORMATIVE DATA AND INTERDEPENDENCIES

Bettina L. Beard[1], Kritina L. Holden[2], Albert J. Ahumada[1]
[1]NASA, United States of America; [2]Leidos

11:00am - 1:00pm **S-28A:**

Risk Management of a Guided Rocket Launch

Ronen Ingbir, Evgeny Protopopov, Asaf Schuldenfrei Rafael, Israel

Developing and Using Comprehensive Hazard Databases for Unique Space Launch Systems

Christopher Moyer, Zachary Krevor
Stratolaunch, United States of America

GUIANA SPACE CENTRE GENERAL SHORT AND LONG TERM LANDSCAPE

Jan Droz[1], Nathalie Costedoat[2]
[1]CNES, Headquarters, France; [2]CNES Guiana Space Centre, French Guiana

Improvement of safety requirement for launch vehicle payload safety about depressurization and offloading propellant in case of propellant leakage after assembling payload to the vehicle

Kenichi Sato
Japan Aerospace Exploration Agency, Japan

Launcher Mission Analysis Preparation with regard to Ariane's Deviated Trajectory Anomaly

Isabelle Rongier
Afriane Group, France

11:00am - 1:00pm **S-28: Commercial Spaceflight Safety**

A COMPARATIVE ASSESSMENT O F COMMERCIALLY-DEVELOPED SPACE VEHICLE TECHNICAL STANDARDS

Ronald Barry Walden[1], Michael Kezirian[2]
[1]University of Southern California; [2]International Space Safety Foundation

Providing Assurance in 21st Century Space Transportation - Does Commercialization, Innovation, and Agility Necessarily Equate to a New Paradigm in Safety Assurance?

Timothy Grant Riley
Sandia National Laboratories, United States of America,

Safety of Spaceflight Participants Aboard Suborbital Reusable Launch Vehicles

Robert William Seibold[1], Ronald nmn Young[2], Nickolas M. Demidovich[3]
[1]The Aerospace Corporation, United States of America; [2]NASA Armstrong Flight Research Center, United States of America; [3]FAA Office of Commrcial Space Transportation, USA

ISS Safety Sustainability

Edward Mango[1], Daine Howard[2]
[1]Consultant/Professor, United States of America; [2]Professor, PhD

NEW APPLICATIONS FOR NEARSPACE AIRSHIPS AND THEIR OPERATIONAL SAFETY

Norul Ridzuan Zakaria[1], Muhammad Nurazmi Abas[2], Shafiee Mahat[2], Mohd Nazri Nazarudin[2], Mohd Haizad Hussain[2], Rasila Hamzah[2], Norhaizat Zainal Abidin[2], Francesco Santoro[3], Md Sayuti Ishak[4], Norul Rafidi Zakaria[5]
[1]SOLVES, Italy; [2]Tijan Galaxy Aerospace Consortium, Malaysia; [3]ALTEC, Italy; [4]University Science Malaysia, Malaysia; [5]AMC-Spaceport Malaysia, Malaysia

1:00pm - 2:30pm **Lunch Break**

1:00pm - 2:30pm **Lunch Break**

2:30pm - 2:50pm **P3: Plenary Closing Session Part I**

Space Explorations in the Byurakan Astrophysical Observatory

Areg Martin Mickaelian
Byurakan Astrophysical Observatory (BAO), Armenia

2:50pm - 3:15pm **P4: Plenary Closing Session Part II**

Results of the IAASS Space Traffic Management Working Group

Mark Andrew Skinner[1], Moriba K Jah[2], Darren McKnight[3], Diane Howard[4]

[1]The Aerospace Corp., United States of America; [2]University of Texas-Austin; [3]Integrity Applications, Inc.; [4]Embry-Riddle Aeronautical University

3:15pm - 4:00pm **P5: Plenary Closing Session Part III**

Safety Solutions within the ESA's Vega and Space Rider Development Programs

Giorgio Tumino

European Space Agency, France

4:00pm - 4:30pm **P6: Conference Wrap-Up & Announcements**