The Journal of Space Safety Engineering (JSSE) provides an authoritative source of information in the field of space safety design, research and development. It serves applied scientists, engineers, policy makers and safety advocates with a platform to develop, promote and coordinate the science, technology and practice of space safety. JSSE seeks to establish channels of communication between industry, academy and government in the field of space safety and sustainability.

MAIN JSSE TOPICS

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- Safety critical software design
- Safety risk assessment
- Safety risk management
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- Regulations and standards for safety
- Space-based safety critical systems
- Space Situational Awareness
- Space traffic control
- Space traffic and air traffic interfaces
- Space materials safety
- Safe & Rescue
- Safety lessons learned

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International Association for the Advancement of Space Safety
On June 4-7, 2015, the Space Policy Program at Rice University’s Baker Institute and Baylor College of Medicine hosted the ninth annual International Space Medicine Summit (ISMS) at the Baker Institute on the campus of Rice University. ISMS 2015 brought together the world’s leading physicians, space biomedical scientists, engineers, astronauts, cosmonauts and educators from the spacefaring nations for high-level discussions to identify not only necessary space medicine research goals but also ways to further enhance international cooperation and collaborative research. All of the International Space Station (ISS) partners were represented, Canada, the European Space Agency, Japan, and Russia. In addition China, the third human space faring nation in the world was also represented at the Summit.

International cooperation is essential to the human exploration of space and ISMS 2015 recognized and celebrated the 40th Anniversary of the Apollo-Soyuz Test Project (ASTP) mission, the advent of a relationship and cooperation that is the foundation of the International Space Station (ISS). Extra-Vehicular Activity (EVA) has also played a major role in the assembly and maintenance of the ISS, and ISMS 2015 also celebrated the 50th Anniversary of the world’s first EVA, performed by Cosmonaut Alexi Leonov in March 1965.

A special EVA Panel was held as a part of the Summit and its related discussions proved to be very interesting and memorable. Cosmonaut Alexei Leonov was one of the six astronauts and cosmonauts that made up the panel. General Leonov described his historic 1965 space walk in detail. General Tom Stafford and Astronaut Gene Cernan in turn, described the planning and execution of the United States EVA that was an integral part of their 1966 Gemini IX Mission and the many problems encountered. The lessons learned on their EVA led to the innovations and subsequent training that in turn have helped to make subsequent EVA’s and the International Space Station space walks so successful. The life threatening problems encountered on the EVA accomplished on the Space Station during Expedition 36 on July 16, 2013, were also related by the two prime participants, Astronaut Chris Cassidy and Italian Astronaut Luca Parmitano [See Hansen, C and Cassidy C, JSSE Vol 1, No, 1, pp 32-39]. Cosmonaut Sergei Ryazansky also described his record breaking space walk on Space Station in December 27, 2013, the longest Russian EVA in history.

Another highlight of ISMS 2015 was a half-hour live video conference with astronaut Scott Kelly and cosmonaut Mikhail Kornienko on board the ISS and Tom Stafford, Alexi Leonov and NASA Administrator Charles Bolden at the Baker Institute. Their discussion provided context for the summit deliberations.

The historic Apollo-Soyuz Mission in July of 1975 was an event of significant importance. It brought hope to a world had lived under the threat of complete devastation or destruction, as two major Cold War adversaries worked together to achieve a common objective. That singular event has had a lasting and beneficial effect on the two adversaries and the world, as they now work together with other international partners to fly the largest international research facility that has ever been built in an orbit over two hundred miles above the earth. Apollo-Soyuz achieved success and the International Space Station is successful primarily because safety was and is an integral and fundamental consideration in the execution of the two programs. The engineers from the two countries shared a common and an essential bond in achieving their successes in space, safety. It was a common language between the engineers on both sides.

In order to ensure successful future human flights to the Moon, and to Mars, there must be much more research to prevent and/or mitigate the medical, psychological and biomedical challenges spacefarers face. The International Space Station (ISS) provides an excellent laboratory in which to conduct the required research.
and it is essential that the station be utilized to its full-
est potential through cooperative studies and the sharing of
equipment and instruments between the international
partners. ISMS 2015 emphasized collaborative research
between the Space Station partners and concluded with
agreement to proceed with a research program founded
upon cooperative research. Many nations and languages
were represented in the discussions, however, the com-
mon thread that was understood and advocated by all,
was clearly safety.

And as we join with other nations to push back the
boundaries in the human exploration of space, safety
must play a key and an essential role in that journey. It is
a common language known to all the successful players
in the great endeavor to explore the heavens.

PROFILE

George W.S. Abbey is the senior fellow in space policy
at the James A. Baker III Institute for Public Policy, one
of the premier nonpartisan public policy think tanks
in the United States. The Baker Institute is an integral
part of Rice University, one of the nation’s most dis-
tinguished institutions of higher education. From 1996
to 2001 George Abbey served as the director of NASA
Johnson Space Center. Prior to being assigned as an Air
Force captain to NASA’s Apollo Program at the Manned
Spacecraft Center in 1964, he served in the Air Force
Research and Development Command and was involved
in the early Air Force manned space activities, including
the Dyna-Soar Program. In 1976, he was named director
of flight operations, where he was responsible for oper-
tional planning and management of flight crew and flight
control activities for all manned spaceflight missions. In
1983, he became director of the Flight Crew Operations
Directorate. In 1990, Abbey was selected as deputy for
operations and senior NASA representative to the Syn-
thesis Group and was charged with defining strategies
for returning to the moon and landing on Mars. In 1991,
Abbey was appointed senior director for civil space
policy for the National Space Council in the Executive
Office of the President. Abbey has received numerous
awards, including the NASA Exceptional Service Med-
al, the NASA Outstanding Leadership Medal and three
NASA Distinguished Service Medals. He was a mem-
ber of the operations team presented with the Medal of
Freedom, the nation’s highest civilian award, in 1970 by
President Richard Nixon for its role in support of the
Apollo 13 Mission. Abbey graduated from the U.S. Na-
val Academy in 1954 and received a master’s degree in
electrical engineering from the U.S. Air Force Institute
of Technology in 1959.
Safety Design for Space Systems
Elsevier 2009
Progress in space safety lies in the acceptance of safety design and engineering as an integral part of the design and implementation process for new space systems. Safety must be seen as the principle design driver of utmost importance from the outset of the design process, which is only achieved through a culture change that moves all stakeholders toward front-end loaded safety concepts. Superb quality information for engineers, programme managers, suppliers and aerospace technologists.

Safety Design for Space Systems, Chinese Edition
2011

Space Safety Regulations and Standards
Elsevier 2011
Space Safety Regulations and Standards is the definitive book on regulatory initiatives involving space safety, new space safety standards, and safety related to new space technologies under development. More than 30 world experts come together in this book to share their detailed knowledge of regulatory and standard making processes in the area, combining otherwise disparate information into one essential reference and providing case studies to illustrate applications throughout space programs internationally.

Safety Design for Space Operations
Elsevier 2013
Safety Design for Space Operations provides the practical how-to guidance and knowledge base needed to facilitate safe and effective operations safety in line with current regulations. With information on space operations safety design currently disparate and difficult to find in one place, this unique reference brings together essential material on: safety design practices, advanced analysis methods, and implementation procedures.