

# IAASS

## - GOALS AND INITIATIVES -

MSc. Carmen Victoria Felix  
International Association for the Advancement of Space  
Safety

UN COPUOS  
Vienna, Austria  
February 2013



- **What is SPACE SAFETY?**
- **Space Exploration Vs. Space Exploitation**
- **Introducing the IAASS**
  - **Organization**
  - **Technical Committees**
  - **Standing Committees**
  - **Strategic Drivers**
  - **IAASS Mission**
  - **IAASS Goals**
  - **IAASS & Academia**
  - **Space Safety Magazine**
- **Conclusions**



- Is not only about human space flight
- Includes safety of ground personnel during launch preparation, public safety related to launch and re-entry operations, space traffic management, and prevention of pollution on-orbit and on ground.





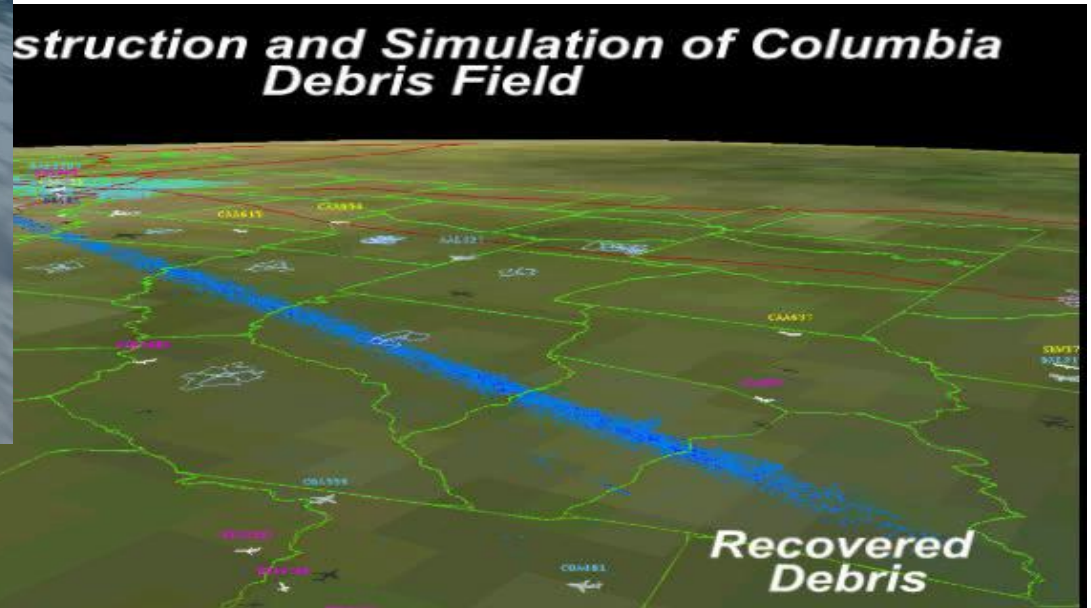
- Spaceports involved in commercial operations **do not** operate according to common international industrial safety standards for ground operations. As a consequence foreign teams involved in launch preparation may be exposed to different levels of risk.



- There is no agency that monitors and controls the cumulative risk imparted annually to overflow populations by launch and re-entry operations.



Credit:  
National  
Geographic



- Debris generated during uncontrolled or off-nominal re-entries could cause casualties in the air which are generally not taken into account by risk assessment models. There is on average **one** re-entry of a major space system (spacecraft or upper stage) per week.

# IAASS Ground pollution by toxic fuels and radioactivity



Source Jonas Bendiksen's book: *Satellites* -2006



Canada 1978





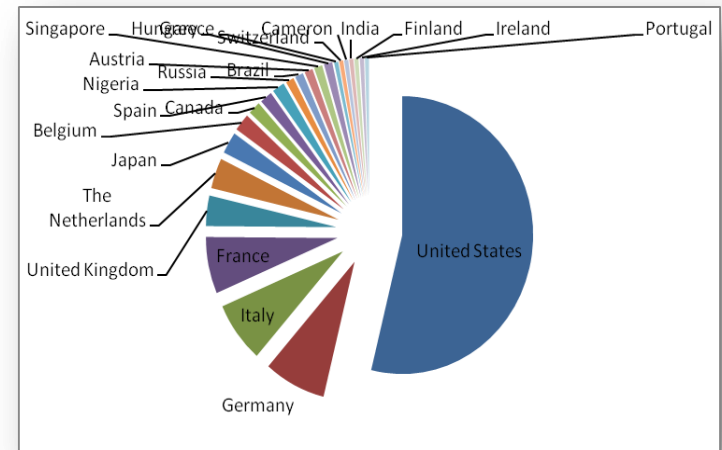


- IAASS has proposed to consider space as made of two functional regions: the “space-exploitation” and the “space-exploration”. According to dictionary:
  - exploitation means making productive use, while
  - exploration means, traveling (over new territory) for adventure, discovery or investigation
- The interests in the space-exploitation region which ends in the geostationary orbit are mainly commercial and military, while in the space exploration region they are scientific.

The space-exploitation region is said to be **congested, contested and competitive**. It poses formidable **political and regulatory** challenges

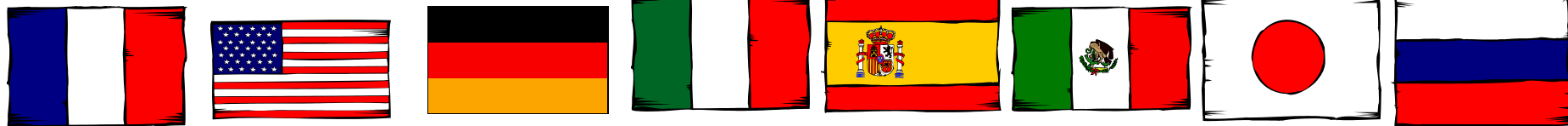
The space-exploration region poses formidable **technical** challenges

- A non-profit organisation dedicated to furthering international cooperation and scientific advancement in the field of space systems safety
- The IAASS is based on the intellectual interaction of individual members who together shape the technical vision of the association, and make the association services available to stakeholders (on a non-profit basis)
- Legally established 16 April 2004, The Netherlands
- Since October 2004 member of IAF
- June 2006, former US Senator John Glenn and first American to orbit became Honorary Member
- June 2010, IAASS granted Observer status at the United Nations COPUOS (Committee on the Peaceful Uses of Space)



The association counts more than 200 professional members from 25 countries. 55% of the members are from industry, while the remaining 45% come from space agencies, governmental institutions and academia

- IAASS Board (governing body of the association)
  - IAASS President, Chair
  - Up to 30 people elected by the General Assembly .
  - Regional Representatives which are elected by the regional members of IAASS (Africa, China, Europe, India, Japan, North America, Russia and South America).



- The IAASS Executive Committee, ensures the operations of the Association together with the Executive Director, the Technical Director, and the Secretary
- Technical Committees and Standing Committees

- Professionals from agencies, industry and academia which satisfy criteria of expertise and excellence compose the seven IAASS Technical Committees:
  - Technical Director - A.P. Menzel, EADS-Astrium
  - Space Exploration & Systems Safety - D.F. Mikula, The Boeing Company
  - Launch Range Safety - T. Pfitzer, APT-Research
  - Space Hazards - Dr. W. Ailor, The Aerospace Corporation
  - Space Safety Laws & Regulations - Prof. R. Jakhu, McGill University
  - Human Factors & Performance for Safety  
B. Kanki, NASA
  - Suborbital Space Safety  
A. Quinn, Saturn SMS Ltd.



- Any member of the Association can volunteer to fill vacancies in the Standing Committees:
  - Information & Communication
  - Membership
  - Young Professionals
  - Professional Training
  - Conference Planning
  - Awards
  - Academic



IAASS Conference 2011 – Versailles, France



IAASS Conference 2010  
Huntsville, USA



IAASS Conference 2008 – Rome, Italy

- Advancing safety is a key element to expand space programs and make them more economically viable.
- Space commercialization and international cooperation in civil space programs is the way ahead. It requires an international safety culture!
- Need for an integrated (airspace/outer space) international regulations system to cover traffic and safety of aero-space operations (emerging suborbital space-planes, space-based safety critical services, etc.).
- Need for uniform international space safety standards to ensure fair competition in the global (space) market.





- Promote an international Space Safety Culture:
  - No accident shall ever happen because the risk was badly measured or willingly underestimated
  - No accident shall ever happen because the necessary knowledge was not made available to others
  - No accident shall ever happen because of lack of political attention or management commitment
  - No accident shall ever happen because lack of personal accountability makes people negligent



- **Advance** the science and application of space safety
- **Improve** the communication, dissemination of knowledge and cooperation between interested groups and individuals
- **Improve** understanding and awareness of the space safety discipline
- **Promote** and **improve** the development of space safety professionals and standards
- **Advocate** the establishment of safety laws, rules, and self-regulatory bodies at national, international levels and industrial level for the civil/commercial use of space.





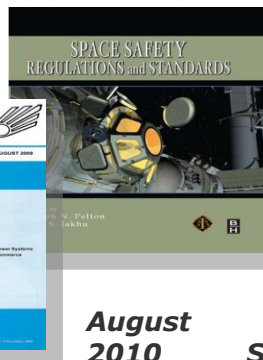
- The IAASS has developed a complete series of university textbooks and is launching an Academic Certificate programme in Space Safety.
- Some of our activities:
  - Organisation of safety conferences and seminars
  - Performance of independent research and studies
  - World-class space safety educational and training programme
  - Safety standards
  - Scientific publications and university textbooks



**March  
2009**



**Special issue on Space  
Safety December 2009**



**August  
2010**



**Safety Design for  
Space Systems,  
Chinese Edition 2011**



**September  
2011**



**May 2013**

- The Space Safety Magazine (SSM) is a quarterly print magazine and a daily news website, jointly published by the International Association for Advancement of Space Safety (IAASS) and the International Space Safety Foundation (ISSF).
- Space Safety Magazine is focused on safety related issues affecting space as well as safety on Earth from space events and objects.

<http://www.spacesafetymagazine.com/>





## IAASS MANIFESTO FOR A SAFE AND SUSTAINABLE SPACE

- I. *Ensure that citizens of all nations are equally protected from the risks posed by over-flying space systems and objects during launch and re-entry/return operations*
- II. *Ensure that space systems are developed, built and operated according to common minimum ground and flight safety rules*
- III. *Seek to prevent collisions or interference with other aerospace systems during launch, on-orbit operation, and re-entry*
- IV. *Ensure the protection of the ground, air and on-orbit environments from chemical, radioactive and debris contamination related to space operations*
- V. *Ensure that mutual aid provisions for space mission safety emergencies are progressively agreed, developed and made accessible without restriction anywhere on the Earth and in Outer Space*



- The Sixth IAASS Conference “Space Safety Is Not An Option” will be hosted by the McGill University of Montreal, Canada, in the period 21-23 May 2013



<http://http://iaassconference2013.spacesafetyfoundation.org/>