SPACE DEBRIS SYMPOSIUM (A6)
(joint session with Space Security Committee): Policy, Legal, Institutional and Economic Aspects of Space Debris Detection, Mitigation and Removal (8)

Author: Mr. denis bensoussan
United Kingdom

SATELLITE SELF REMOVAL AS MITIGATION TO SPACE DEBRIS

Abstract

The lecture would present to the IAC 2015 the progress implemented in the research project called PROTEC-1-2015 (Passive means to reduce the impact of Space Debris) in the H2020 research program of the European Commission. The focus of the project is on the development of a Technology for Self Removal to ensure Post Mission Disposal for Spacecraft (TESER), i.e. a removal pack on a spacecraft. This lecture would raise awareness on the risks management and economic aspects of the project in view to develop a comprehensive risk-conscious approach in the concept, design and production phases.

When ask whether they are concerned about space debris, space insurers state that it represents an ever-increasing risk for the space industry at large. However, asked whether they factor the risk into their pricing models for assessing space risks, the answer from most would be that they cannot really factor it into their pricing, as even if emerging, the probability of an insured satellite failing due to a space debris hit is still perceived as orders of magnitude lower than the probability of in-orbit failure due to an onboard equipment malfunction.

The lecture would present a different reality as it will demonstrate that the risk over the life of a satellite, depending of debris size, altitude, inclination, size values may actually be relatively close to the annual risk of technical failure. Despite being a growing worry, to date there have been relatively few collisions and none generating an insurance payout. However, when that happens, since the industry has not yet been 'tested', its 'day after' response remains difficult to anticipate in much detail besides restrictions in coverage and price increase.

The project aims at exploring a new paradigm and a realistic business case of a satellite based solution to debris generation and disposal while at the same time potentially increasing the satellite overall reliability and mission life.

Practically, this lecture would discuss the following topics:
- Identification and quantification of the Space debris risk
- Market and business analysis. Requirements and demand assessment
- Risks identification, assessment and valuation of candidate solutions
- Evaluation and impact on operator and space insurance market (cost / benefit analysis)
- "Business and insurance-stress testing" of selected solutions