

17th IAA SYMPOSIUM ON SPACE DEBRIS (A6)  
Policy, Legal, Institutional and Economic Aspects of Space Debris Detection, Mitigation and Removal  
(Joint Session with IAF Space Security Committee) (8)

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## CNES TOWARDS FUTURE SPACE TRAFFIC MANAGEMENT

### Abstract

The past 10 years have witnessed a continuous increase of the orbital population, with more than 5.000 new objects, or one third of the population. These additional objects are mostly debris, as there are nowadays only some 700-800 additional operational satellites compared to 10 years.

And the coming 10 years may have their lot of surprises as well, with the emergence of new practices in orbit including streams of very small non-maneuvrable satellites, and constellations of medium size spacecraft devoted to internet. In parallel, new services are being developed, such as On-Orbit-Servicing, space tugs, potentially space debris remediation missions. . .

As a consequence of such past and future evolution, it appears logical that numerous actors identify some need for a space traffic coordination, rather than management, in order to achieve some sustainability of our orbital operations.

CNES, and more generally France, have been proactive in this domain since decades. France was the first country to adopt a law dealing with the orbital operations, including space debris mitigation, and dedicated teams work on the topic for both spacecraft and launcher activities. France also benefits from a radar and telescope network enabling a national catalog to be maintained. CNES has developed all the tools necessary for the proper understanding of the current and future situation, enabling us to play a major role in all the international fora on the subject. CNES has also developed the first "middle-man" service dealing with the conjunction data messages, leading to a very efficient collision avoidance service.

This experience could well turn out to be fundamental in the preparation of potential actions in near future, discussing the need for, and helping define, an international coordination of the space traffic.