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UN Discussions of Space Debris Issues

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Abstract. The role and activities of COPUOS, the UN Committee for the Peaceful Uses of Outer Space, are briefly described.

1. Introduction to COPUOS and its Activities

Soon after the launch of the first artificial satellite, the General Assembly of the UN established COPUOS, the Committee for the Peaceful Uses of Outer Space. The COPUOS was entrusted with the task to act as a focal point for space matters, to support international cooperation and to consider legal problems which might arise in space activities.

During the 1960s and 1970s, the COPUOS elaborated five international treaties and several sets of principles which have served the space community very well and with remarkable foresight. Nevertheless, the first phenomenon which had not *and could not* have been anticipated was the growing importance of space debris.

Some documents containing information on space debris have been put before the COPUOS and its Scientific and Technical Subcommittee or its Legal Subcommittee in the past. The first document dates back to December 1979 (Mutual Relations of Space Missions, 1979). A detailed treatment of space debris appeared in 1982 in a Background Paper for the conference UNISPACE 1982 (*The World in Space* 1982). The study dealt with collision probabilities, planned decay of inactive satellites in low Earth orbit (LEO) and with their disposal orbits in GEO (geostationary orbit). It also commented on concerns of astronomers over effects harmful to observations.

The COPUOS invited COSPAR (Committee on Space Research) and the IAF (International Astronautical Federation) in 1988 to prepare a study on environmental effects of space activities. The study dealt with the origin and impact of space debris and with possible preventive measures (Perek & Bauer 1988).

At the session of the COPUOS Scientific and Technical Subcommittee in 1991 several states proposed to put space debris on the agenda but consensus was reached only on a request addressed to Member States to present results of their national research on space debris. The situation changed in 1994 when consensus was finally reached and space debris became an agenda item. It was agreed that a Technical Report on Space Debris would be elaborated addressing all major technical aspects. Two organizations were asked for assistance: space agencies of launching countries, represented by the Inter-Agency Space Debris

Coordinating Committee IADC[1] and the scientific community represented by the IAA (International Academy of Astronautics). The Technical Report was finalized by the COPUOS Scientific and Technical Subcomittee at its session in 1999 (UN doc. A/AC.105/720). It contains details on the measurements, on modeling of the space debris population and on space debris mitigation measures. Possible further actions concerning space debris will be considered and decided upon by COPUOS at its forthcoming sessions.

2. Recommended Resolutions for UNISPACE III

It was proposed to address two recommendations to UNISPACE III. The first recommendation should express an appreciation of the work done by the UN and a support for future activities. Specifically it was proposed to join efforts with the American Institute of Aeronautics and Astronautics (AIAA), which adopted at a Workshop held in Bermuda, April 1999, the following wording:

> "The Workshop participants strongly support work being done by the United Nations, the Inter-Agency Space Debris Coordinating Committee (IADC), the International Academy of Astronautics (IAA), and others to develop guidelines designed to minimize the creation of new debris objects.
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> The Workshop recommends that existing and future debris minimization guidelines be applied uniformly and consistently by the entire international spacefaring community. In addition, Government licensing agencies are encouraged to promote such compliance among the space community in their respective countries.
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> In addition, minimizing the creation of new debris, the problem of on-orbit debris must be addressed. Mitigation of debris on orbit can be addressed in at least two ways. First, by moving large debris, such as satellites at the end of operational lifetime, out of the way of active satellite orbits and second, by the active removal of visible, but untracked smaller debris. Some aerospace companies are not including deorbit capabilities on their spacecraft, and hence these spacecraft will contribute to the problems of orbital congestion and debris well past their operational lifetimes."

The second recommendation deals with a problem which may become important in the future. At present, there are no methods for removing from orbit those objects which have no maneuvering capability. This includes almost the entire population of orbiting debris of a total mass of 2000 to 3000 tons.

The AIAA Workshop, quoted above, also adopted the following wording:

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[1]The IADC was founded in 1993 by ESA, Japan, NASA, and the Russian Space Agency, RSA. China joined in 1995, the British National Space Center, the Centre National d'Études Spatiales of France, and the Indian Space Research Organization in 1996, the German Aerospace Center in 1997 and the Italian Space Agency in 1999.

> "While the economic justification and consequences to the space environment of implementing debris removal technologies must be better understood, continued development of such technologies should be encouraged. Governments are strongly encouraged to invest in basic pre-competitive technology that could be further developed and applied by commercial operators."

By adopting these two recommendations, this meeting of UNISPACE III should express its point of view on preventing the generation of new debris, as well as on the need to develop and prove methods for removing existing small debris from orbit.

References

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