OECD International Futures Programme (IFP) Study:
“Role of space technologies and ICT in the surveillance of global threats”

FIFTH WORKSHOP: SPACE SECURITY
Hosted by the European Space Agency
ESA Headquarters, 8-10 rue Mario Nikis, Paris
9 July 2012

Summary of Meeting

The OECD / IFP has launched a new study in partnership with Institutional and private actors, with the aim to examine how space technologies and ICT could be useful in addressing potential global threats identified by the OECD Global Shocks project and the World Economic Forum. This workshop, held at the European Space Agency, focuses on the theme “Space Security”, to examine two specific risks: interference of satellite signals (navigation, telecom) and collisions in orbit.

The meeting was chaired by Pierre-Alain Schieb of the OECD. The European Space Agency (ESA) kindly hosted this workshop at their headquarters in Paris. 30 participants gathered on 5th July for the fifth and final workshop in the OECD Study. The workshop focussed on Space Security. Nine countries were represented (Canada, France, Germany, India, Japan, Norway, Switzerland, the United States and the United Kingdom), 4 participants from academia/IGOs/research institutes (Eurisy, European Satellite Operators Association and the Space Policy Institute), and 3 institutions from the private sector (Astrium Satellites/EADS, Eutelsat and Thales Alenia Space).

Giuseppe Morsillo, Director of ESA Policies, Planning and Control, welcomed us to their Headquarters, where they kindly received the group for the last workshop.

Pierre-Alain Schieb, Head of Futures Projects of the OECD International Futures Programme, chaired the meeting and provided the introduction to the day and to the OECD IFP Study.

Frequency spectrum has become an increasingly exploited and restricted resource. At the same time, it seems to be getting easier to interfere with satellite signals, be it telecom, earth observation or navigation. But is it really the case and how serious is the problem? Our objective in this session is to review the situation today and prospectively over the next 5 to 8 years in two domains:

- The growing demand and competition for radio frequencies. What is the situation? What are the impacts for operators?
- The cases of satellite signals interference. Again what are the impacts? Do we have surveillance mechanisms and warning systems? What type of mitigation exists? We will discuss specific examples in scientific missions, telecom as well as GNSS.

The first presentation was given by our ESA colleague, Luca del Monte, Senior Strategy Coordinator in the Strategic Planning and Strategic Control Office, gave us a useful general overview “Threats and vulnerabilities of space systems in the information age”.
Srinivasan Venkatasubramanian, Head of the Space Service Coordination Division in the Space Service Department of the International Telecommunication Union (ITU) gave a presentation on “Radio regulations and control of interference to satellite signals”.

Jean-Luc Issler of the French Centre National d’Etudes Spatiales (CNES) presented “Signal management: evolutions in spectrum allocation”.

Mark Rawlins, Head of Payload Engineering and Operations of Eutelsat also participated at the workshop. He presented “Satellite Radio Frequency Interference – Learning the Lessons”.

We saw the issue of satellite navigation signals in more detail. Based on the discussions, we can see there are many issues linked to signal interference in satellite communications. But this is also true for navigation and positioning applications. We touched on this already, with the multiplication of systems coming online.

Kouichi Morimoto, Deputy Director of the Paris office of the Japan Aerospace Exploration Agency (JAXA), then shared with us an overview of recent JAXA developments with regards to regional GPS augmentation satellites.

Marc Haese, Senior Strategy Analyst, European Space Politics and Special Affairs at the German Aerospace Centre (DLR) shared a brief presentation on “Security and Interference in Commercial Communication and Navigation Satellite Systems”.

After lunch in the ESA restaurant, we continued with the second topic of the day. This afternoon session reviewed the issue of space debris and instances of collision between satellites. Presentations addressed possible remedies, not only codes of conduct, but technical solutions that already exist or could be developed in the near future. We are interested by the different types of risks in both LEO and GEO orbits, which affect commercial missions as well as scientific missions. Hence the blend of both commercial operators, as well as space agencies, around the table at this workshop.

As in the first session, our objective was to focus on surveillance mechanisms and warning systems today and over the next 5 to 8 years. Are the risks of collisions from space debris real? Is the problem getting worse? How is the surveillance really working? What type of mitigation exists?

First to take stock of the overall problem, we heard from Heiner Klinkrad, Head of the Space Debris Office of ESA.

Then Aarti Holla-Maini, Secretary-General of the European Satellite Operators' Association presented on “Managing Collision Risk: The Space Data Association”.

Christophe Bonnal, Senior Expert from CNES’ Launchers Directorate, spoke about the “Panorama of possible remediation techniques”.

Natercia Rodrigues, Programme Officier from UNCOPOUS in Austria, presented “Space debris mitigation: status of work at the United Nations”.

A very lively discussion ensued on space debris. It was sometime after the foreseen time that the Chairman thanked the group for their presentations and contributions and wished everyone a safe trip home.