International Advisory Board Workshop

Assessing the Impact of Satellite Earth Observation on Society and Policy

9th – 10th November 2015

Tokyo, Japan

Summary of Conclusions

An International Advisory Board recently met in Tokyo with the overarching goal of ***Assessing the Impact of Satellite Earth Observation on Society and Policy***[1]. A series of roundtable discussions invited perspectives from experts to understand how Earth observations contribute to environmental and other policy-making, and how space agencies establish links between their programmes, scientific advance, industrial innovation, and societal well-being. At the closing of the Workshop, the Advisory Board concluded with the following key findings from the two days of meetings:

1. **Earth observations provide a unique window and perspective on our world; serving the betterment of all humankind by supporting policies aimed at sustainably managing natural and societal resources on an ever more populous, affluent and interconnected planet Earth.**
   - For example, Earth observations can make an important contribution to addressing some of the world's greatest health risks including air pollution, water contamination, lack of sanitation and those related to increasing urbanization.
2. **Earth observations should be regarded as critical societal infrastructure. There is strong evidence that publicly open Earth observations are making positive, cost-effective contributions to solving a variety of high priority environmental and societal problems.**
   - Studies on the socioeconomic benefits of improved global Earth observation systems show that the benefits outweigh the costs by orders of magnitude when subject to a free and open data policy. The European Copernicus programme for instance is expected to return benefits to taxpayers valued ten times higher than the costs.
3. **There is a need to develop appropriate institutions in the field of Earth observation through a process to ensure that the observations and prediction systems are comprehensively exploited for policy-making with full engagement of all stakeholders and end-users.**
   - The U.S. (Decadal Survey) and European (Copernicus) experiences provide fine examples of the benefits of 'all-of-government' processes in defining satellite missions. At the global level, initiatives for greenhouse gases, forests and other areas are being developed to support contributions to policy.
4. **Japan, together with its international partners, should identify and fill emerging gaps in next generation space missions to guarantee full realisation of all societal benefits of Earth observations derived from long-term continuity.**
   - The lack of a systematic, long-term plan for satellite environmental observation missions by the Japanese Space Plan is of particular concern.
5. **There is a changing paradigm for Earth observations, with non-governmental groups launching satellites, and with the growing popularity of small satellites, drones and crowd-sourcing/citizen science campaigns, which are associated with the rapid development of data technology and applications.**
   - The increasing number of rapid-response, cost-effective and high-performance satellite missions, together with the possibility of exploiting 'big-data', provide opportunities, as well as challenges, for enhanced global Earth observations.

[1] The Advisory Board was convened in support of the project "Study on Methods for Assessing the Impact of Satellite Observations on Environmental Policy", funded by Japan Science and Technology Agency (JST), and jointly carried out by National Institute of Information and Communications Technologies (NICT), Keio University, Institute for Global Environmental Strategies (IGES), and Japan Aerospace Exploration Agency (JAXA).

List of Participants

- International Advisory Board members:

Oran Young (Chair)	University of California, Santa Barbara
Josef Aschbacher	European Space Agency (ESA)
Carlos Dora	World Health Organization (WHO)
Jinlong Fan	China Meteorological Administration (CMA)
Claire Jolly	Organisation for Economic Co-operation and Development (OECD)
Murielle Lafaye	French National Centre for Space Studies (CNES)
Molly Macauley	Resources for the Future (RFF)
Teruyuki Nakajima	Japan Aerospace Exploration Agency (JAXA)
Michael Obersteiner	International Institute for Applied Systems Analysis (IIASA)
Ake Rosenqvist	SoloEO
Sir Martin Sweeting	Surrey Satellite Technology Ltd. (SSTL)
Tatsuya Yokota	National Institute for Environmental Studies (NIES)

- Japan Science and Technology Agency (JST) Strategic Basic Research Programs (Research Institute of Science and Technology for Society) “Study on Methods for Assessing the Impact of Satellite Observations on Environmental Policy” Project members:

Yasuko Kasai	National Institute of Information and Communications Technologies (NICT)
Akiko Aizawa	National Institute of Informatics (NII)
Setsuko Aoki	Keio University
Akiko Okamatsu	Hosei University
Masami Onoda	Japan Aerospace Exploration Agency (JAXA)
Henry Scheyvens	Institute for Global Environmental Strategies (IGES)
and others	