



UN-SPIDER NEWSLETTER

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SpaceAid

SpaceAid resource page contributes to information- and data flow after earthquake and tsunami in Japan

The March 2011 earthquake and the resulting tsunami brought destruction and enormous losses along big parts of the north-east coast of Japan. The United Nations Office for Outer Space Affairs through its UN-SPIDER Programme immediately established contact with its networks to provide relevant information about the availability of pre- and post-disaster space-based data on the devastating event. The UN-SPIDER global network includes the established UN-SPIDER Regional Support Offices and the nominated National Focal Points in the Pacific region, as well as a number of leading providers of space-based information and social media resources around the World.

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Right after receiving the news about the earthquake, UN-SPIDER staff contacted the Programme's international partners and set up a SpaceAid resource page on its Knowledge Portal. This page comprised information about the availability of space-based rapid mapping products, further institutional links to other mapping products and geodata, geo-links and databases, as well as space-based resources, i.e. satellite imagery. For select sensors, pre- and post-disaster primary imagery was shared with the response community. The webpage included information on products made available by value-adding institutions such as the Regional Service of Image Treatment and Remote Sensing (SERTIT), the Crisis Information Center of the German Aerospace Center (DLR/ZKI), through mechanisms such as Sentinel Asia and the International Charter Space and Major Disasters, as well as other governmental and non-governmental sources. UN-SPIDER also provided a Google Earth KML of areas that would potentially be affected by resulting tsunami waves in the Pacific Basin, based on NOAA forecasts.

As soon as the danger of a nuclear fall-out at the Fukushima Daiichi power plant became obvious, UN-SPIDER increased the cooperation with staff of the International Atomic Energy Agency (IAEA) by means of exchanging data and by sharing information. In this context, UN-SPIDER supported as possible monitoring activities related to the threat of a nuclear fall-out and the effects it could have on the region. Everything mentioned above was done within a few hours after the disaster occurred, providing valuable assistance to the response community by publicizing their efforts and results in a timely manner.

Due to the impact of the event and

an increased use of social media, the number of visitors of this dedicated web page rose sharply within the first two weeks after the event. A number of relief- and response websites identified the UN-SPIDER resource page as a major information- and data source, as the Programme continued to work with data providers and value-adders to ensure the flow of information. While institutions and mechanisms such as the ZKI of DLR and the International Charter focused on acquiring and processing data, UN-SPIDER was able to make the results of their work available to the wider disaster management community in a timely manner, based on its networking- and coordination capacities and through keeping the resource page up to date. The more contributions were made by satellite providers, and the more data was made available during the hours and days after the disaster, the more value was added for those retrieving information from the resource page. Visit <http://www.un-spider.org/japan-pacific>



Google Earth: overview of available mapping products

Satellite communication, a failsafe option for disaster management and emergency response

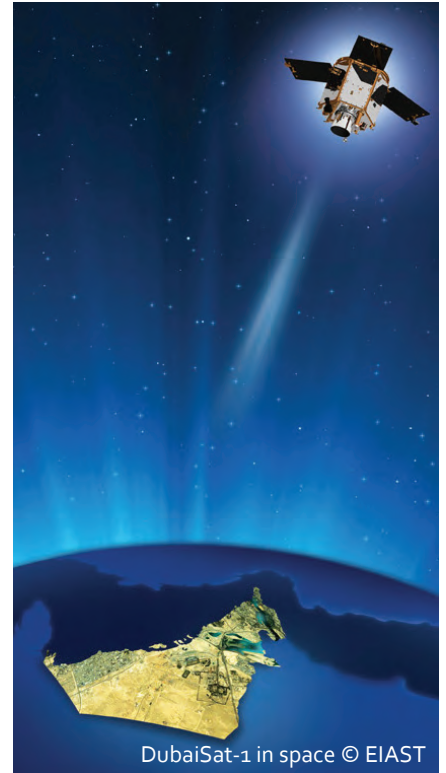
In the past months, UN-SPIDER has participated in a number of conferences and meetings across the Middle East, promoting the use of space-based information for disaster management and the mission of the Programme. Particularly the use of satellite-based communication technology was discussed on these occasions.

Recent events in Asia as well as the ongoing unrest in parts of the Middle East have highlighted the fact that access to communication links is essential in targeting aid to those most in need. In this regard, satellite communication benefits not only those directly affected but also search and rescue missions by international aid organizations as well as national civil and military response teams.

While landlines are frequently rendered unusable during natural disasters, public cellular lines are also often out of order, as they become overloaded during the critical hours of disasters. Satellite communications are frequently the only secure and reliable way

to support emergency telecommunications. Satellite phones, Broadband Global Area Networks (BGANs) and Very Small Aperture Terminals (VSATs) enable the two-way relaying of not only voice communication but also video and other data to the rest of the world. These products provide a temporary channel of communication to those affected, at least until the terrestrial telecommunications and mobile network infrastructure can be restored.

In particular the challenges faced by the oil and gas industry when it comes to disaster recovery are unique. Supplying the World's demand for fossil fuels and minerals has driven companies to explore more remote, geographically widespread and sometimes environmentally harsh and extreme areas. Satellite communication is deployed by the oil and gas industry for operations command and control and it is also the main communication means when technical disasters strike. ■



DubaiSat-1 in space © EIAST

UNOOSA seminar at GSSF, Abu Dhabi, United Arab Emirates

During the Global Space and Satellite Forum (GSSF), a three-day event held at the Abu Dhabi National Exhibitions Centre from 9 to 11 May, leading experts discussed how satellite communications play an important role in disaster relief, particularly in areas where terrestrial lines and mobile telephone infrastructure are destroyed, as was the case for large parts of the east coast of Japan after it was hit by the devastating earthquake and tsunami in March this year.

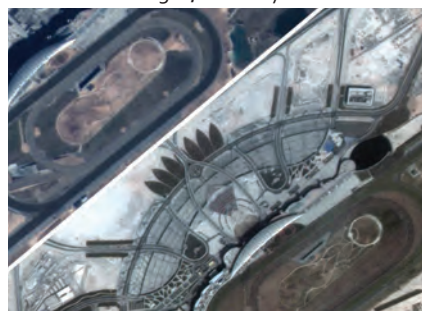
At GSSF 2011, UN-SPIDER initiated the talks towards developing partnerships with space communication providers, including satellite operators, satellite phone companies and satellite broadband providers, coordinating the provision of robust emergency communications to the countries directly affected by disasters.

Matthew W. Botwin for the Global VSAT Forum (GVF), Adnan Al Reis from the Emirates Institution for Advanced Science and Technology (EIAST) and Yusuf S. Hascicek, Senior Expert at UN-SPIDER, gave presentations on behalf of their institutions. The UN-SPIDER

activities were introduced and a short workshop was organized on "The Use of Space Science and Technology for Disaster Management and Emergency Response". The major Earth Observations and telecom players of the region were represented at the meeting, and several of them stated their willingness to support UN-SPIDER activities in the field of satellite communications. ■



Disaster- and development monitoring. DubaiSat-1 images, courtesy of EIAST



Training Course at Arab Naif University for Security Sciences, Riyadh, and visits with the top management of International Organizations in Jeddah, Saudi Arabia

In March, a Senior Expert of UN-SPIDER introduced the UN-SPIDER Programme and its activities during lectures at the Training College of Naif Arab University for Security Sciences to about 40 civil defense managers from 11 Arab countries for half a day. There was substantial interest in the Programme's work.

After the training, further meetings with the Vice President and other high-level representatives of the Islamic Development Bank (IDB) and with the Presidency of Meteorology and Environment (PME) of the Ministry of Defense and Aviation of Saudi Arabia were held and opportunities to follow-up on future collaboration were discussed. The UN-SPIDER staff further had the opportunity of presenting the Programme to representatives of the Organization of Islamic Conference (OIC), where collaboration opportunities on joint workshops and training activities were assessed. ■

Juan Acuña about the Chilean Space Agency and its role in disaster management



Juan Acuña

Space-related activities in Chile have their origin in 1957 with the establishment of the Control Center of the United States National Aeronautics and Space Administration (NASA) and the Center for Space Studies of the Universidad de Chile. In the 1990s, the Chilean Air Force developed two satellite projects called Fasat-Alpha and Fasat-Bravo. Later, in 2001, an inter-institutional seminar gave rise to the Presidential Advisory Commission, which was established with the mandate to elaborate the draft version of the legislation which would establish the Chilean Space Agency (Agencia Chilena del Espacio, ACE). The Commission included representatives from the Ministries of Health, Defense and Finance, as well as from the National Committee of Science and Technology (CONICYT), and was led by a Board. The Commission conceptualized the national space policy and discussed potential uses of space technologies. In addition, it played a role in the satellite project along with the Chilean Air Force. Toward the end of the year 2008, a Presidential Decree introduced the notion of a more civil-type agency, as opposed to an exclusively military agency. As a result, the Chilean Space Agency was established under the Ministry of Economy. Mr. Juan Acuña is the Executive Secretary of the Chilean Space Agency and talked to UN-SPIDER about the goals of the Agency, the role it takes on in disaster management, and his view on its future fields of engagement.

UN-SPIDER: Chilean space activities have developed from being a military domain to a civil activity under the Ministry of Economy. What are the main goals of the Chilean Space Agency today?

Mr. Acuña: Since 2010, ACE has developed its efforts in two areas of action: Science and Technology, and Earth Observation and Remote Sensing.

Regarding the latter, the overall goal is to promote the use of space technologies in civilian applications to pave the way for Chile to be a more competitive nation in this field. In 2010, we defined four strategic areas of focus in remote sensing:

- Evaluation of natural resources,
- Land-use planning,
- Environment management, and
- Disasters of natural or man-made origins.

In the field of Science and Technology, the ACE is involved in projects related to the development of nano-satellites along with the University of Chile, and in the Moon Mars Atacama Research Stations project MMARS for the development of space technologies for the exploration of Mars and the Moon with the University of Antofagasta, among others.

UN-SPIDER: Focusing on the topic of disasters, could you comment on how the Chilean Space Agency was involved in the response efforts after the earthquake in Chile in February 2010?

Mr. Acuña: The Agency coordinated a multi-

sectorial effort along with ONEMI that facilitated the use of space-based imagery to assess areas of impact and damages. Efforts included acquisition, classification, sorting, and processing to generate useful information to assist decision makers in responding to the event. More than 1000 images were received and the inter-sectorial group processed more than 400 to support emergency response efforts.

UN-SPIDER: What were the most important lessons learned from this experience?

Mr. Acuña: In general, it could be stated that the Agency is being recognized as a solid institution, which can bring together partners from Chile and from abroad to contribute to the solution of problems which may arise, and to promote development. Among the key lessons learned from this event, the following stand out: The ad-hoc group which was established soon after the earthquake must be institutionalized so that it can respond more effectively in case of disasters. This particular response effort highlighted the added value of the Chilean Space Agency in promoting a fluid exchange of information between the different governmental institutions. In addition, it must be recognized that the Chilean Space Agency facilitated the interaction between national agencies and international mechanisms such as the SpaceAid Framework of UN-SPIDER and the International Charter, space agencies such as CONAE and NASA, space-image providers such as Spot Image,

and USGS in relation to the Charter. Another lesson learned is the value of the training program that was conducted by USGS and CONAE and addressed the staff of ONEMI and other governmental agencies. The Agency coordinated this effort as well.

UN-SPIDER: You just mentioned the value of training programs. Can you comment on the relationship between the Chilean Space Agency and the academic sector?

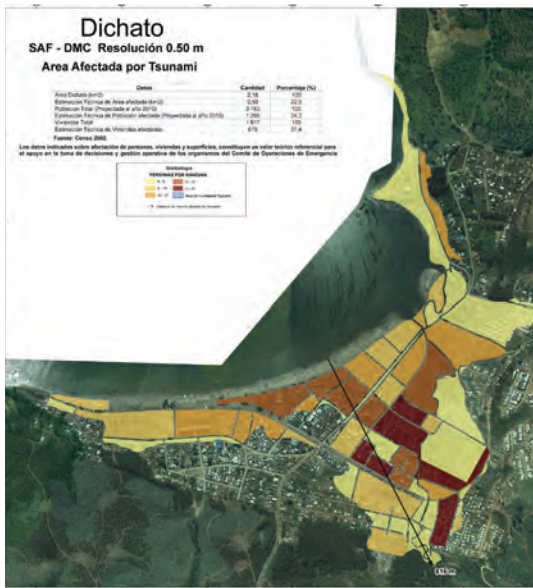
Mr. Acuña: The Chilean Space Agency is optimizing its efforts to network with this sector through joint projects and through inter-institutional agreements. In addition, the Chilean Space Agency acknowledges the role that universities play in higher education and research, and is looking for scholarships and fellowships to send students abroad. The Agency is aware that strengthening institutional capacities in ministries and agencies is essential for spreading the use of space applications in such institutions, as well as in the industrial sector, in agriculture, mining, and environmental management.

UN-SPIDER: How do you view the Chilean Space Agency in the next 5 years?

Mr. Acuña: I would view the Chilean Space Agency as an independent organization that manages projects focusing on the use of satellites and that promotes the use of satellite applications in areas of telecommunications, remote sensing, and satellite-assisted positioning and navigation. In addition, I view it as

Outreach

Now online! Proceedings of the Fourth International UN-SPIDER Bonn Workshop



an agency that helps institutions from the public and the private sector to take advantage of the opportunities that exist in the context of the use of space applications, particularly in sectors of development such as agriculture, aquiculture, and land-use planning. Furthermore, I look forward to the agency contributing to increase economic growth and hence the well-being of the Chilean society.

UN-SPIDER: Thank you very much for taking the time to share with us your views on the Chilean Space Agency.

Mr. Acuña: You are welcome. ■

From the Introduction by the Board of Editors: For the first time in the four-year history of the UN-SPIDER programme, we are happy to present a volume of Workshop Proceedings. The papers are presented as an online publication on the UN-SPIDER Knowledge Portal. The publication contains a number of selected papers which were presented during the sessions of the Fourth United Nations International UN-SPIDER Bonn Workshop, as well as a few additional papers that were submitted by professionals who could unfortunately not attend the event and/or did not have the chance to present their findings to the workshop audience. Nonetheless we found these contributions to be fitting the overall frame of this publication and worth sharing with the interested readership.

The papers are arranged according to the session topics of the workshop, with slight alterations. Accordingly, there are four chapters focusing on International support mechanisms and the SpaceAid Framework, Satellite communication for disaster management, Earth observation and geospatial information in support of risk and disaster management, and the UN-SPIDER Network and its activities. As a general framework, the workshop contributed to the coordination of the various initiatives that are supporting developing countries to access and

use space-based technologies for disaster management and risk reduction, and to explore possibilities of capacity development and institutional strengthening.

Just as the workshop participants, the authors of this publication reflect this multitude of stakeholders. The papers reflect the experiences and views of end users, service providers, networkers, and academia. They stem from the private sector as well as public institutions and organizations. They cover topics like information generation and dissemination as well as technical solutions and scientific approaches. The mixture of these different backgrounds provides a valuable overview of the topic of satellite technology for disaster management and gives an insight into the dynamics of the UN-SPIDER workshops.

The Editorial Board of this booklet hopes, that with the present publication a valid impression of the 2010 Bonn Workshop is provided and that it not only serves as a documentation of a past meeting, but rather as input for future developments. We hope that the products and technologies introduced serve the better information of the end users, and that the reports of experiences and the mentioning of lacks and needs serve as an impulse to the providers.

Visit <http://www.un-spider.org/4c-challenge-communication-coordination-cooperation-capacity-development> ■

Network

OGC reduces membership fees for developing nations

In May 2011, the Open Geospatial Consortium (OGC) announced new membership options for organizations based in emerging economies. The OGC's primary mission is to facilitate an inclusive consensus process for the development of open standards. The OGC's education and outreach activities support this mission and provide additional value to members and stakeholder communities. To support the current trend toward more global participation in the OGC's open standards process, the OGC has responded to requests for a fee structure that gives certain categories of organizations discounts based

on their country of registration. These categories include government, academic, research, not-for-profit, individuals, and some for-profit organizations. Discounts are based on world economic indicator data compiled and published by the World Bank.

The OGC is building global representation through new members in regions including Africa, South East Asia and South America, as well as through support from the OGC Global Advisory Council. The need for information integration and the ability to share geospatial information within organizations, across organizations and across borders has increased

dramatically in recent years. This has been driven by a large number of factors, such as the large number of emergencies and disasters worldwide where data sharing is key.

Another element of OGC's flexible membership pricing approach is GovFuture, a new kind of membership available for government agencies operating at the local, state or provincial levels in all countries. GovFuture membership focuses on helping local and sub-national governments implement and use OGC standards to achieve government mission objectives. ■

The OGC is an international consortium of more than 415 companies, government agencies, research organizations, and universities participating in a consensus process to develop publicly available geospatial standards. OGC standards support interoperable solutions that „geo-enable“ the Web, wireless and location-based services, and mainstream IT. OGC Standards empower technology developers to make geospatial information and services useful with any application that needs to be geospatially enabled. Visit <http://www.opengeospatial.org/>

Regional answers to global challenges: UN-SPIDER contributes to workshop on global environmental change and water-related diseases in Uzbekistan



Global environmental change and water related diseases: Improving risk assessment strategies for public health care in Uzbekistan was the theme and title of a workshop held in Tashkent, Uzbekistan, from May 2 to 6, 2011. It was organized by the Center for Development Research (ZEF) in Bonn with the support of the Volkswagen Foundation, the World Health Organization (WHO) and the Ministry of Health of the Government of Uzbekistan. Its Deputy Minister, Assameddin Kamilov, held an opening address. The workshop brought together more than 50 experts in the fields of public health and risk management from around 10 countries, representing a wide range of organizations and disciplines. The workshop in Tashkent focused on the impact of global environmental change on human health. One of the main premises of the workshop was that globalization brings about increased spreading of diseases and a changing epidemiology of endemic diseases. The

approach for relevant products and results in the course of the project, in close coordination with the Ministry of Health (Scientific Research Institute of Sanitation, Hygiene and Occupational Health). This work package will closely interact with other project partners and local stakeholders in Uzbekistan in order to develop adequate dissemination strategies and provide feedback to the project on a timely basis. Backbone of the dissemination activities will be the UN-SPIDER Knowledge Portal (www.un-spider.org) which is taking full advantage of up-to-date web technology in order to support the UN-SPIDER network in all its operational domains.

Situation in Uzbekistan

Water related diseases in central Asian countries and especially in Uzbekistan have increased in recent years - due to microbiological and industrial pollution as well as to salinity of drinking water. These diseases have become a major challenge to the public health care systems in the region. According to the WHO, sanitation and hygiene can lead to better health conditions of the population and hence increase economic and social productivity in the country. The Ministry of Health

of Uzbekistan highlights that man-made

pressure on the environment and on water in particular is growing: whereas 90 % of the water resources in Uzbekistan are being used for irrigation purposes, 5 million people don't have access to centralized water supply schemes. Another area of concern is increasing waste water by local industries, especially in downstream territories.

have to be investigated more thoroughly. The disparity and distribution of diseases (regional, gender and age-specific) has to be documented and registered more consistently, and people and groups vulnerable to water-related diseases have to be identified more systematically. Regarding health education and research, Uzbekistan needs more adequately trained researchers for conducting risk assessments of water-related diseases. Moreover, capacities to train staff for creating awareness on public health care issues need to be strengthened. Further information on the project will be made available on <http://www.zef.de>



final goals were to develop an international collaborative research and capacity-building program and to improve health care services related to water borne diseases in the region. This includes an initiative for improved risk assessment strategies for public health care. Based on the results of the workshop, a proposal will be submitted for funding this application-oriented and trans-disciplinary research on water-related diseases and global environmental change in Central Asia. Within the planned international research- and capacity-building program, UN-SPIDER will be involved in a work package for the development of an effective dissemination

of Uzbekistan highlights that man-made pressure on the environment and on water in particular is growing: whereas 90 % of the water resources in Uzbekistan are being used for irrigation purposes, 5 million people don't have access to centralized water supply schemes. Another area of concern is increasing waste water by local industries, especially in downstream territories.

Theory and practice

In the course of the workshop, five expert panels dealt with different aspects of water and health issues in Central Asia. For the water and health nexus, the following recommen-



ditions were made: A water safety plan has to be developed for Uzbekistan in accordance with WHO standards. Also, the economic, social and institutional feasibility of existing drinking water quality standards and the respective regulatory framework in Uzbekistan has to be assessed. Research-based tools can help to improve health governance under the following premises: GIS tools have to be used for epidemiological studies assessing risk from water-related diseases. Moreover, geo-referenced data on water-related diseases have to be collected, stored and analyzed and scenarios that project future occurrences of water-related diseases taking into account global environmental change have to be designed. The public health care system in Uzbekistan, especially for the poor and vulnerable, can also be improved. To this end, economic aspects of public health care in Uzbekistan

Global Platform for Disaster Risk Reduction



The third session of the Global Platform for Disaster Risk Reduction took place from 9 to 13 May 2011 in Geneva, Switzerland. The session brought together more than 2,600 participants representing governmental organizations, inter-governmental and international organizations, academic institutions, non-governmental organizations, representatives from the civil society and from the private sector.

In his remarks during the opening ceremony, His Excellency Mr. Ban Ki-moon reiterated the need to work together under a strong leadership and with the commitment to make this World safer for all. The Secretary General of the United Nations reminded the audience that the Great Eastern Earthquake of Japan is a warning to all on the fact that disasters can happen in poor and in rich countries.

Recognizing that substantial progress has been achieved in many countries in the context of the Hyogo Framework for Action, H.E. Ban Ki-moon stressed the need to focus efforts along three lines:

- 1 – To accelerate efforts on disaster risk reduction as vulnerability is growing faster than the capacity to enhance resilience.
- 2 – To work together and involve all stakeholders in efforts to enhance the resilience of communities.
- 3 – To risk proof development, as the economies of Least Developed Countries and Small Island Developing States suffered worse from disasters due to poverty, climate variability and climate change.

As in the previous session of the Global Platform held in 2009, Mr. Andrew Maskrey of the United Nations International Strategy for Disaster Reduction (UN-ISDR) summarized the findings compiled in the 2011 Global Assessment Report on Disaster Risk Reduction. In his remarks, Mr. Maskrey commented that investments in Disaster Risk Reduction (DRR) continue to be minimal when compared to the losses faced by many countries due to disasters and he reiterated the need to change this trend, suggesting that governments have choices and that its important to see how to use development choices and introduce measures to reduce risks associated with natural phenomena.

In his remarks he noted that while exposure of people and economic activities to weather-related hazards is increasing, cyclone mortality is being reduced. However, economic losses continue to increase, par-

ticularly due to the greater exposition of assets to such hazards. Mr. Maskrey also highlighted the fact that drought remains a hidden risk and a challenging effort.

In the specific context of the Hyogo Framework for Action and the five key priorities for action, he commented that while there are advances in all five key priorities, there are mixed results. Notable advances can be seen in priority 2 which focuses on risk assessment and early warning. Major improvements are also notable in Priority 5 related to preparedness and capacity to respond. However, reducing underlying risk has shown slow progress when compared with the other priorities. Recalling the fact that disasters increase poverty worldwide, Mr. Maskrey concluded his presentation recommending that efforts should be conducted to ensure that disasters do not force families into poverty. He then stressed four types of activities:

- Reform risk governance,
- Ensure political authority and policy coherence,
- Decentralize step by step and incrementally,
- Develop a culture of partnership.

In her comments, Margareta Wahlström, Assistant Secretary-General for Disaster Risk Reduction, recognized that the Global Assessment Report should be a way to track in which areas progress is being made. She also stressed the need to recognize the importance of moving from reaction to proaction. Speaking to all delegates and people taking part in the plenary session, she highlighted the need to target communities at risk in developing countries, as such communities have to face the impacts of disasters in many cases without a way to cope (for example, without insurance). She commented that a potential strategy could be to use public-private partnerships.

The Global Platform session was held in parallel with the World Reconstruction Conference organized by the World Bank, and included plenary sessions, round tables, side events, the Sasakawa Award ceremony, and the Market Place. All of these provided the setting for participants to become aware of advances in disaster risk reduction worldwide, and to network with peers. ■

UN-SPIDER Side Event at the Third Global Platform

UN-SPIDER organized a side event on Thursday May 12 together with the German Aerospace Center (DLR), the Asian Disaster Reduction Center (ADRC), the International Society of Photogrammetry and Remote Sensing (ISPRS), and Esri, a developer of geo-spatial tools including geographic information systems. The side event attracted more than 50 participants and allowed them to become aware of the most recent examples of applications of space-based information, and of ongoing efforts of the organizing agencies.

In addition, this session of the global platform allowed UN-SPIDER:

- To discuss with representatives of United Nations agencies and other regional and international organizations activities and ways to advance in the promotion of the use of space-based information and other developments such as crowd-sourcing.

- To network with representatives of Asian, Caribbean, and Latin American countries to plan subsequent training activities.
- To network with representatives from the private sector including Esri, Google, Munich-Re-Insurance Company, and others as a way to look for synergies to strengthen the capacities of national platforms to make use of space-based information in their efforts related to disaster-risk reduction.
- To network with representatives of Sri Lanka, Bangladesh, Cameroon and Nigeria where UN-SPIDER will be conducting Technical Advisory Missions in the coming months.

The Global Platform Session concluded with a reaffirmation concerning the need to work together in an efficient and timely manner to achieve the goals proposed in the Hyogo Framework for Action. ■



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The United Nations Office for Outer Space Affairs (UNOOSA) implements the decisions of the General Assembly and of the Committee on the Peaceful Uses of Outer Space and its two Subcommittees, the Scientific and Technical Subcommittee and the Legal Subcommittee. The Office is responsible for promoting international cooperation in the peaceful uses of outer space, and assisting developing countries in using space science and technology. In resolution 61/110 of 14 December 2006 the United Nations General Assembly agreed to establish the "United Nations Platform for Space-based Information for Disaster Management and Emergency Response - UN-SPIDER" as a new United Nations programme to be implemented by UNOOSA. UN-SPIDER is the first programme of its kind to focus on the need to ensure access to and use of space-based solutions during all phases of the disaster management cycle, including the risk reduction phase which will significantly contribute to the reduction in the loss of lives and property. UN-SPIDER Newsletter, Volume 2/11, May 2011. © United Nations Office for Outer Space Affairs.