UNITED NATIONS | UNOOSA | UN-SPIDER

United Nations Platform for Space-based Information for Disaster Management and Emergency Response

UN-SPIDER NEWSLETTER

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SpaceAid

SpaceAid bolsters Emergency Response in Haiti

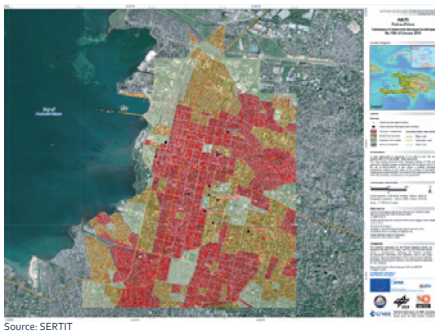
UNOOSA Director, Mazlan Othman, expressed her heartfelt condolences to the people of Haiti, saying: "We offer our deepest sympathy to all those affected by this tragic event. The devastation caused by the earthquake in Haiti is massive and through use of space-based information we are helping the disaster relief efforts. High-resolution imagery now provides an indispensable means to assess damages caused by disasters. Through its use, relief agencies can then allocate desperately needed resources more efficiently, avoiding duplicative efforts in the same areas and identifying gaps."

The UN-SPIDER SpaceAid framework was triggered on 12 January 2010 for the devastating earthquake of magnitude 7 that struck Haiti. The massive damage to the local infrastructure in Haiti has made satellite images and maps vital to assess damage and plan the relief work. Those images can be used by humanitarian relief workers on the ground to for example identify accessible roads and suitable areas to set up relief facilities.

UN-SPIDER experts became involved in supporting relief efforts only minutes after the earthquake hit. Immediately, UN-SPIDER coordinated through its network with a vast number of providers of space-based information, value adding services and partners from the end-user community. Among others, UNOOSA activated the International Charter: Space and Major Disasters on behalf of the United Nations Stabilization Mission in Haiti, MINUSTAH.

The main vehicle to support the international relief efforts for Haiti in terms of space-based assets is the SpaceAid section of UN-SPIDER's Knowledge Portal. On this website, UN-SPIDER compiles, organizes and disseminates the latest available space-based information, including space-derived images, maps and related geospatial data of the affected areas. This information is continuously updated and made available to end users in the field as well as to the general public.

UN-SPIDER will equally seek to play a decisive role in supporting recovery efforts after the early response phase.



Source: SERTIT

Since the publication of the last Newsletter, similar activities were carried out for a number of natural disasters. SpaceAid was triggered on 5 January 2010 for a 6.8 magnitude earthquake off the Solomon Islands leaving hundreds of people homeless, and also when Cyclone Mick swept over Fiji's main island Viti Levu, causing widespread flooding and damage in December 2009. Earlier last year, UN-SPIDER through its SpaceAid framework supported relief efforts in El Salvador after floods claimed dozens of lives in November 2009. Equally, SpaceAid was triggered when a series of tropical cyclones heavily impacted the Philippines and Lao P.D.R in October 2009. UN-SPIDER's efforts to connect the space data providers with users on the ground was especially recognized by the Government of Philippines during the United Nations 4th Committee meetings in New York, as well as in national press. ■

SpaceAid is UN-SPIDER's framework to facilitate fast and efficient access to space-based information for countries, international and regional organizations. This includes all types of information provided by earth observation satellites, communication satellites and global navigation satellite systems. SpaceAid support can be accessed by the UN-SPIDER National Focal Points (NFP), UN-SPIDER Regional Support Offices (RSO) and UN organizations. Government agencies, major international and regional organizations will also have access to SpaceAid as procedures develop. Users can request the support through a hotline via telephone, e-mail or fax. A central coordination unit coordinates and follows-up on all requests. This framework is operational on a 24 hours a day/7 days a week basis in order to respond timely to a disaster.

In this issue:

Upcoming Newsletter:

Special Feature on Small Island Developing States. Technical Advisory Missions to **Jamaica, Fiji, Samoa** (Dec. 2009), and the **Dominican Republic** (Jan. 2010). SpaceAid response to **Haiti** earthquake.

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Case Study

A ZKI Rapid Mapping Activation after heavy floods hit Albania

After several days of very heavy rainfalls, the water levels of Albanian rivers rose quickly in the beginning of January 2010. The most affected area of the country is the area around Shkodra, a region in the northwest of the capital Tirana. Thousands of people had to be evacuated and, according to local media, more than 2000 houses and 9000 hectares of agricultural land were inundated. To prevent the hydropower station dam of Koman from breaking, the authorities were obliged to open the emergency gates. This worsened the situation around Shkodra even more and Albanian military and civil organizations started to give evacuation assistance and aid distribution.

In order to get a detailed overview of the situation on ground as fast as possible, the Monitoring and Information Centre (MIC), operated by the European Commission in Brussels, activated the International Charter "Space and Major Disasters" on Thursday, 7 January, 2010. Shortly after the call, the Centre for Satellite Based Crisis Information (ZKI) at the German Aerospace Center (DLR) accepted the request to produce Rapid Mapping products over the most affected area in the north of Albania. The project SAFER (Services and Applications for Emergency Response) provided the necessary framework for taking on this task.

For producing flood maps, images indicating the normal water level are required. These archived scenes arrived on Friday, 8 January 2010. Newly acquired satellite imagery was downloaded on Saturday morning by the ZKI Rapid Mapping team and analysed right away. The first products were provided to the MIC and published to the ZKI-website on Saturday, only 48 hours after the first request for up-to-date crisis information.These products included an overview map with basic information about the affected area as well as detailed satellite maps of the northern and southern region around Shkoder. Inundated areas were derived by analyzing TerraSAR-X data gathered on Saturday, 9 January, 2010 and Radarsat imagery acquired on both Saturday, 9 January, 2010 and Tuesday, 12 January, 2010. The results were also cross-checked against ENVISAT ASAR IMP data gathered on 8 January, 2010. To enhance the products with natural colour, SPOT imagery acquired on 20 June, 2007 and Landsat imagery acquired on 16 June, 2002 were used as a backdrop. Figure 1 shows one of these post-disaster products. Pre-disaster water bodies are shown in dark blue, while post-disaster inundated areas are illustrated in a light-blue shade. Further analysis was accomplished by interpreting FORMOSAT-2 imagery acquired on January 13, 2010, as shown in Figure 2.

The displayed results delineate affected villages and agricultural areas as well as threatened regions. Through the different dates of survey, the progression of the disaster can even be delineated chronologically. On-site disaster management personnel may use these satellite maps produced by ZKI to direct relief efforts to the right places and to analyze the progression of the event afterwards, so that the effects of future disasters may be diminished or even prevented. ■

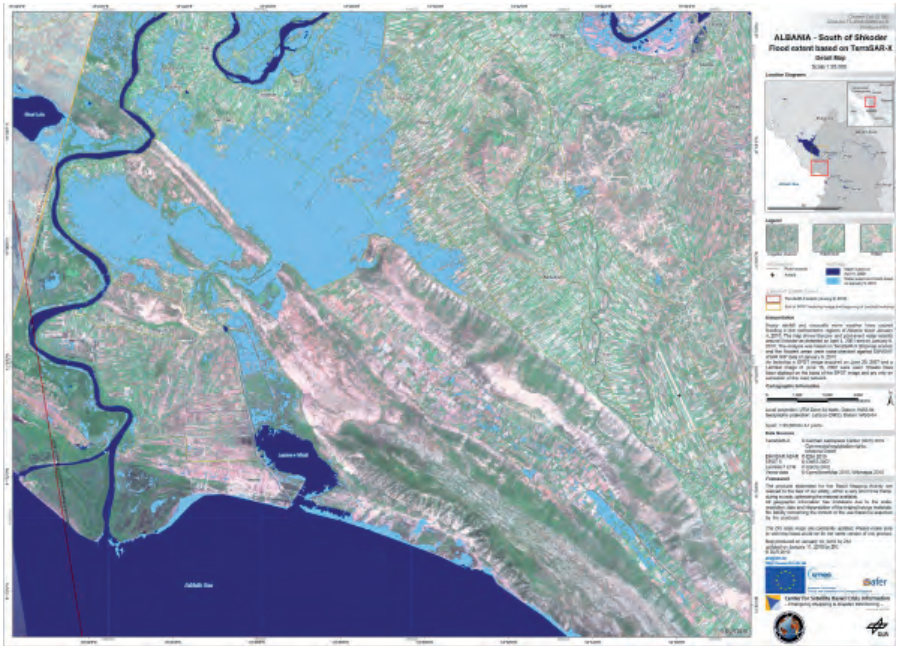


Figure 1: Post-disaster satellite map south of Shkoder based on TerraSAR-X (DLR/ZKI)

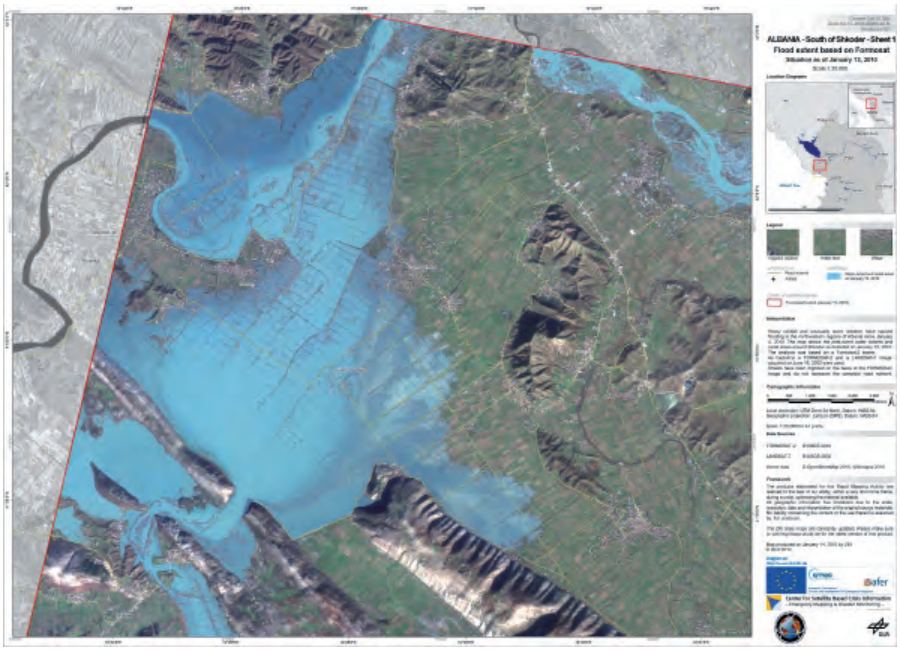


Figure 2: Post-disaster satellite map south of Shkoder based on FORMOSAT-2 (DLR/ZKI)

Feature

UN-SPIDER and Ecuador: strengthening ties during Regional Workshop…

The current state of Disaster Risk Management in Ecuador

The Republic of Ecuador is exposed to a variety of hazards such as earthquakes, floods, landslides, volcanic eruptions, and drought. Recognizing the need to counteract the impact provoked by such natural phenomena, the Government of Ecuador recently took decisive measures in the policy and strategic realms. In its new 2008 Constitution it introduced the National System for Disaster Risk Management as the key mechanism to coordinate and promote the execution of activities by private and governmental agencies. The Secretariat coordinating this System was elevated to the rank of a Ministry of State in September 2009.

One of the key activities conducted by this Secretariat is the implementation of a strategy interlinking university research centers, government agencies in charge of the observation of natural phenomena, and mapping institutions. The aim is to promote the harmonization of work in the assessment and mapping of risks associated with these hazards, to conduct awareness campaigns and identify key measures which could be implemented to reduce such risks. ■

Regional UN-SPIDER Workshop: "Space-based Applications for Managing Risk Reduction and Emergency Response in Latin America"

The regional UN-SPIDER workshop titled "Space-based Applications for Managing Risk Reduction and Emergency Response in Latin America" was held in Quito, Ecuador from 29 September to 2 October 2009. Organized and conducted with the support of the Governments of Spain and Ecuador, which also offered financial contributions and technical advisory support, the event gathered more than 60 practitioners, academics and space agency representatives from 17 countries.

The 21 plenary presentations and the following discussion sessions covered four aspects that are relevant in the planning of activities by UN-SPIDER and the SPIDER Thematic Partnership for Latin America and the Caribbean:

• Policies to institutionalize access to and use of space-based information to support all phases of disasters, and to ensure that there are professionals who can establish this critical mass at all times through training and institutional strengthening

• Harmonization of efforts with other international organizations, regional agencies and national institutions

• Sustainability of efforts at the international, regional and national levels and regarding resources (human, infrastructure, and financial)

• Capacity building through a network of regional centers and national institutions such as universities and national training centers.

Throughout the sessions, UN-SPIDER managed to collect Country Profiles from participants of six countries, describing the level of advancement in the use of such information in the respective countries (Guatemala, Dominican Republic, Colombia, Peru, Venezuela, and Costa Rica). Inputs were also collected for the Technical Advisory Mission (TAM) that was to be conducted in Ecuador during the week that followed the workshop. The workshop also sparked the planning of the TAM that was to be conducted in the Dominican Republic in January 2010, and initiated efforts to conduct similar missions in Colombia, Venezuela, and Guatemala. Also, numerous ideas were brought to the fore on establishing joint activities with ISDR, CIIFEN, CRECTEALC, CEPREDENAC, CONAE, PAIGH, and other regional organizations.

...and Technical Advisory Mission

Finally, UN-SPIDER would like to acknowledge the outstanding advice provided by the staff of the National Institute of Aerospace Applications of Spain, and the excellent support provided by the Ministry of Foreign Affairs, Trade and Integration of Ecuador, the Ecuadorian Air Force, and the National Secretariat for Risk Management in Ecuador.

The Technical Advisory Mission to Ecuador

Conscious of the potential of space-based information to support all phases of the disaster cycle, the Government of Ecuador invited UN-SPIDER to conduct a TAM. The mission was conducted from 5 to 8 October, 2009, allowing experts to identify strengths and weaknesses and subsequently to elaborate an Action Plan to enhance the capacity of agencies in Ecuador to access and make use of such information.

The TAM was coordinated by the National Secretariat for Risk Management of Ecuador, and the team of experts set up by UN-SPIDER included Tania Sausen, from the Brazilian National Institute for Space Research (INPE), Alvaro Soldano from the Argentinean National Commission of Space Activities (CONAE), and Joerg Szarzynski and Juan Carlos Villagrán de León from the UN-SPIDER Programme.

During the mission, meetings were conducted with high-ranking officers of twelve institutions and coordination meetings were held with staff from the National Secretariat for Risk Management and with staff from the Pro-Tempore Secretariat of the V Space Conference of the Americas under the Ministry of Foreign Affairs, Trade and Integration.

The mission enabled experts to highlight the following:

- Notable advances in the process of institutionalization of disaster-risk management in Ecuador at the policy, strategic, and implementation levels
- The existing capacity of several technical-scientific institutions to access and make use of space-based information targeting a variety of hazards
- The coordinating role that the National Secretariat for Risk Management and the National Secretariat for Planning and Development of Ecuador are conducting, particularly in the context of spatial database infrastructures
- The capacity of institutions such as the Center for Integral Surveys of Natural Resources using Remote Sensing to train professionals and practitioners on issues related to access and use of such information, including for disaster-risk management
- The efforts conducted by the United Nations and other international agencies in the area of humanitarian assistance through the establishment of a coordinating structure headed by the World Food Programme of the United Nations.

As a result of the TAM, a set of recommendations both at the policy and strategic levels was formulated, including ensuring access to space-based information, promoting interoperability and generation of metadata, strengthening human resources in governmental agencies, and designing strategies for vulnerability assessment and building the architecture for the country's spatial database infrastructure.

The mission concluded with a formal visit to the Ministry of Foreign Affairs, Trade and Integration, where the experts presented their preliminary findings to high ranking authorities of the Ministry, as well as to representatives of the National Secretariat for Risk Management and other institutions which were invited to participate in this meeting.

Follow-up events:

The results of the Regional Workshop and the TAM delivered input for the following events:

- The meeting of the Scientific and Technical Sub-Committee of COPUOS in February 2010
- The regional UN-SPIDER workshop in Africa, to take place in May 2010
- The Spring School to be held by CRECTEALC and CONAE which focuses on the issues of drought and desertification
- The meeting of COPUOS to take place in June 2010
- The UN-SPIDER International Workshop in Bonn during the year 2010

Interview with Mr. Janvier Bazoun, Chief of Cartography and Remote Sensing, Institut Géographique du Burkina

Janvier Bazoun is the Chief of Cartography and Remote Sensing at the Institute of Geography of Burkina Faso in Ouagadougou. His participation in the Technical Advisory Mission (TAM) in Ouagadougou in November 2008 strengthened the ties between the Institute of Geography and UN-SPIDER. As a result, Mr. Bazoun proved to be an important contact point for UN-SPIDER during the flash floods in September 2009.
At the Third International UN-SPIDER Bonn Workshop, he presented the "Contribution of space technologies in the management of flooding, 1 September 2009 in Burkina Faso: From activation of the Charter to rapid mapping".

UN-SPIDER: Mr. Bazoun, first of all, thank you for your active participation in this Third International UN-SPIDER Bonn Workshop, and your impressive presentation. What are some of the reasons behind your decision to come to Bonn on this occasion?

Mr. Bazoun: Well, as you know, a Technical Advisory Mission was conducted in Burkina Faso in November 2008, almost one year ago. This mission was requested by our government with the aim of improving our disaster management and emergency response capabilities and particularly the use of space-based information. Following the TAM, I participated in the UN-SPIDER workshop „Building Capacities to Reduce Disasters", in Vienna, Austria, in June 2009.

UN-SPIDER: Then, unfortunately, you had the chance to put the newly gained knowledge into practice: Ouagadougou was hit by flash floods.

Mr. Bazoun: That's right, just last month in September 2009, the city of Ouagadougou was severely hit by flash floods which caused not only the loss of lives but also damaged housing and infrastructure. UN-SPIDER provided valuable support in these days with the activation of the International Charter and especially with web-training for image processing once the imagery was available. Unfortunately, the map provided by the International Charter in this case arrived only 6 days after the flooding and could not really be put to use. Therefore it was very helpful to get a user-oriented, hands-on online training on image processing by the UN-SPIDER staff.
So the purpose of my participation in this workshop and of my presentation was to present the follow-up of the Technical Advisory Mission as well as the response activities to the flash floods and to share with the other workshop participants our experience and the value of space-based information for emergency response.

UN-SPIDER: You mentioned other workshop participants. Whom was it important for you to meet?

Mr. Bazoun: First of all, it was highly interesting to meet the entire community that gathered at this event, and that is in one way or another specialized in the fields of satellite technology and disaster management. For me it was particularly important to personally share the experience we have gained in Burkina Faso and to learn from what others have experienced in other places.
It was also very beneficial to learn about the developments in e-learning as well as the activities related to Malaria and other vector-borne diseases. Furthermore, getting an overview of the Centre National d'Etudes Spatiales (CNES) programmes has generated some ideas for capacity building opportunities. Meeting the people dealing with these topics in person is essential for future communication and even collaboration.

UN-SPIDER: Were there any other topics that were of particular interest to you?

Mr. Bazoun: I think that the break-out session for the working group on users' needs was of great relevance. In order to effectively support Disaster Management, it is indispensable to fully understand the users' requirements and also the resources available to them. This break-out session clarified some of these necessities. As a follow-up activity of this workshop I will apply this new understanding to identify users' needs in Burkina Faso.

UN-SPIDER: Besides that, are there any other follow-up actions that you intend to undertake upon your return to Burkina Faso?

Mr. Bazoun: I am taking new ideas home with me and most of all some valuable contacts and knowledge about what is being done in other countries. For example the Namibia SensorWeb Pilot Project was a good case in that it pointed out how such a project can develop, which partners can be involved and what steps need to be taken.
Last but not least, UN-SPIDER has invited me to the UN-SPIDER side event at the upcoming Scientific and Technical Subcommittee session of Committee on the Peaceful Use of Outer Space (COPUOS) in February, in order to present the case of Burkina Faso. I see this as a great chance to bring to the attention of this committee both the situation in my country and the effective work that UN-SPIDER has been doing in providing us with access to space-based information and facilitating its use.

UN-SPIDER: Mr. Bazoun, thank you very much for this interview and we look forward to working together in the future!

Mr. Bazoun: Let me thank you as well for the opportunity to present the situation in Burkina Faso at this workshop and also for the valuable support and advice we have received from the UN-SPIDER team, especially Mr. Szarzynski and Mr. Ravan! ■

Workshops

A full success: Third International UN-SPIDER Bonn Workshop: "Disaster Management and Space Technology – From Concepts to Application"

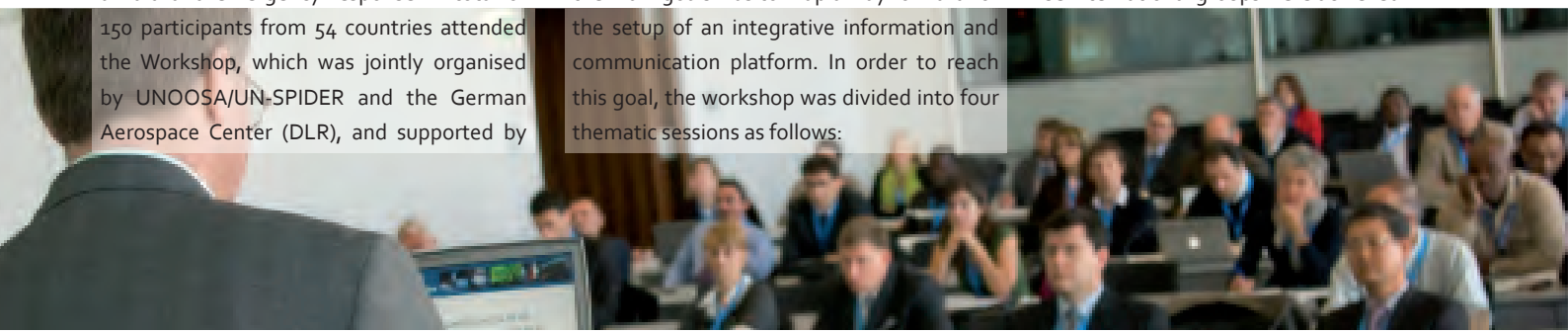
The Third International UN-SPIDER Bonn Workshop, titled "Disaster Management and Space Technology – From Concepts to Application" took place from 21 to 23 October 2009, and was fully successful in bringing together numerous experts from various communities worldwide. High ranking decision makers from ministries, space agencies, and disaster management organizations convened with international scientific organizations and educational institutions, as well as internationally active private companies, who had all come with the intention of sharing their best practices and bringing in their knowledge, products and technologies for risk and disaster management, humanitarian aid and emergency response. A total of 150 participants from 54 countries attended the Workshop, which was jointly organised by UNOOSA/UN-SPIDER and the German Aerospace Center (DLR), and supported by UNCCD.

The political dimension of natural disasters and disaster management was underlined by the opening statements of the two ambassadors, H.E. Ambassador Ruediger Luedeking, Ambassador of Germany to the United Nations in Vienna, Austria, and H.E. Ambassador Neville Gertze, Ambassador of the Republic of Namibia in Berlin, Germany. Both gave an overview of their perception of and experience with space-based information in support of disaster management.

As the title "From Concepts to Application" already suggests, the workshop focused on the technical development of user–based requirements into tangible applications. One of the main goals was to map a way forward for the setup of an integrative information and communication platform. In order to reach this goal, the workshop was divided into four thematic sessions as follows:

1. Space technology in support of risk and disaster management
2. SpaceAid
3. Adaptation to global climate change and land degradation utilizing innovative monitoring and analyzing tools
4. Disaster Medicine, Telemedicine and Integrated Vector Management (IVM)

Further specific activities merging with the workshop programme included the Caribbean Flood Management Project, the Namibia SensorWeb Pilot Project, and the Geographic Information Support Team (GIST) meeting. Looking back at the three-day workshop, great synergies in fostering the communication and network development between these international groups were achieved. ■



Outreach

UNOOSA staff bridge climate change mitigation and space-based technology at COP15

Amidst the recent global climate change talks, UNOOSA demonstrated its commitment to and involvement in climate change issues by participating in the Copenhagen United Nations Climate Change Conference (COP15), from 7 to 18 December 2009. During the first week of the conference, Mr. Sergei Chernikov attended the United Nations Framework Convention on Climate Change (UNFCCC) Subsidiary Body for Scientific and Technological Advice (SBSTA) plenary meetings and participated as a panelist in the United Nations Convention to Combat Desertification (UNCCD) organized event on the role of land under the new climate change policy framework. Following suit, Mr. Lóránt Czárán and other team members participated in the second week of the conference, which witnessed a VIP surge, and intense high level negotiating sessions.

UNOOSA set up an exhibition booth as well as a demonstration space at the central UNFCCC "iSeeT" Kiosk, showcasing the UN-SPIDER programme's activities to various ministry representatives and organizations. Most importantly, UNOOSA was allotted time to give a presentation on "Space-based Information for Climate Change Mitigation and Disaster Management" in the central presentation space of the Kiosk. This attracted a wide array of COP15 participants and contributed to the Kiosk's aim, by adding to the reservoir of ideas and information on practical ways in which ICT is currently helping people and organizations.

UNOOSA staff also participated in a number of side events where various Parties and organizations presented their work, often engaging in Q&A sessions, and managing to establish tight links and future cooperation prospects with various United Nations agencies as well as government representatives. ■

UNITED NATIONS
Office for Outer Space Affairs

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 1/10, January 2010.