



United Nations Platform for Space-based Information for Disaster Management and Emergency Response (UN-SPIDER)

Supporting Risk and Disaster Management from Space

CHINA EARTHQUAKE: UN-SPIDER STRENGTHENS ACCESS TO SPACE-BASED INFORMATION

The Wenchuan Earthquake which China suffered on 12 May 2008 proved to be catastrophic. As of 11 June 2008, the Chinese State Council Information Office reported 69,146 persons killed, 17,516 missing, and 374,131 injured. The National Disaster Reduction Center of China (NDRCC) took the lead in using space-based information to support the emergency relief efforts. Within half an hour after the earthquake the first map had been produced, and within three hours the International Charter ‘Space and Major Disasters’ (<http://www.disasterscharter.org>) had been triggered.

NDRCC has already received nearly 1300 images from 22 satellite sensors made available by 11 countries and by the European Space Agency, based on which NDRCC produced over 120 maps for the emergency relief efforts. The UN-SPIDER Support Team, a group of experts made available by NDRCC for the upcoming UN-SPIDER Beijing Office, coordinated the work of nearly 40 analysts, mostly volunteers.

The International Charter made available a relatively large number of about 150 satellite images. It also became clear that more and more space agencies are willing to

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UN-SPIDER ASSISTS NAMIBIA FLOOD MAPPING

A severe flood in Namibia and Angola started at the end of January 2008 and reached its peak in March, leading the Namibian government to declare a state of emergency. Throughout this time, response workers on the ground requested and received maps

which showed the extent of the floods. Guido Van Langenhove of the Hydrological Services in Namibia received assistance from the international community to produce these maps including from UN-SPIDER.

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Photo Credit: Guido Van Langenhove

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China Earthquake

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provide space-based data directly to support relief efforts. This new operational environment again highlights the need for the UN-SPIDER programme, which was active in multiple levels of the response efforts to the Wenchuan Earthquake. UN-SPIDER also facilitated the contribution of interested space agencies and providers of value added services, helping them understand the user needs and how to channel their contributions.

Additionally, UN-SPIDER brought on board an expert to provide initial advice on how NDRCC should strengthen its structure to process the vast amount of incoming data. UN-SPIDER's Programme Coordinator also met with NDRCC on-site to assess UN-SPIDER's support and to work with NDRCC to ensure that lessons learned from the experience will be made available to other countries.

This will include NDRCC's expertise in using space-based information to identify earthquake damages, mapping quake-formed lakes, supporting the analysis of life-line roads, mapping the dynamics of camps, and importantly, using space-based information to support the reconstruction efforts.

UN-SPIDER FACILITATES COOPERATION FOR MYANMAR

Immediately after Tropical Cyclone Nargis swept over Myanmar, UN-SPIDER responded to the emergency first by activating the International Charter at the request of the United Nations Office for the Coordination of Humanitarian Affairs (UN-OCHA) and then by



facilitating the cooperation among satellite-based imagery providers, value-added providers and humanitarian relief organizations. A result of this effort was the collaboration between Germany's Center for Satellite Based Crisis Information (ZKI), ITHACA (Information Technology for Humanitarian Assistance, Cooperation and Action; Italy) and the World Food Programme.

Based on data from the radar satellites TerraSAR-X (Germany), COSMO-SkyMed (Italy) and ALOS/PALSAR (Japan), several maps were produced of the affected areas in Myanmar (sample above), supporting the ground-based activities of field teams from the World Food Programme as well as other relief agencies and organisations. All map products can be accessed on-line (<http://www.reliefweb.int>).

Additionally UN-SPIDER is now working directly with the Myanmar Ministry of Forestry in helping their experts access the satellite data and following up on their specific needs.



UN-SPIDER Support Team made available by NDRCC discussing the analysis being done by the NDRCC Expert on the Tangjiashan quake-formed lake (7 June 2008). Back row: Mr. Liu San Chao, Ms. Li Suju (Head of the UN-SPIDER Support Team) and Mr. Wei Wu.

UN-SPIDER PRESENT IN CENTRAL AMERICA

The United Nations University – ITC School on Disaster Geo-Information Management (<http://www.itc.nl/unu/dgim/default.asp>), together with local partners recently organized a “Training Course on Landslide Warning and Risk Assessment” (2-6 June 2008) and a “Workshop on the Establishment of a University Network for Disaster Risk Reduction” (9-10 June 2008). Both activities were held in La Antigua, Guatemala and received direct support from the UN-SPIDER programme, including financial support which enabled the participation of experts from within the region. This was made possible due to the funding support provided directly by the Government of Austria to the UN-SPIDER Programme.

An enthusiastic group of 30 participants from all Central American countries contributed to the success of the landslide course. The workshop was attended by coordinators of all national universities of Central America. Representatives of important regional initiatives such as CAPRA, SERVIR and CEPREDENAC were also in attendance. The aim was to define the tasks of

the university network, namely in curriculum development, teacher training, organization of short specialized courses, project acquisition, coordination, and information dissemination.

UN-SPIDER will work closely in the coming months with this university network and ITC in the development of a specific curriculum to support capacity building in the area of space-based information for disaster and risk management in Central America.

UN-SPIDER AT TOULOUSE AND BERLIN AIR AND SPACE SHOWS

UN-SPIDER was present at the 2008 Toulouse Space Show during the International Week of Space Applications, 22-25 April 2008 which this year had the theme “Space and Social Issues.” Prof. Kai-Uwe Schrogl (European Space Policy Institute), in a paper entitled “Satellites and Services for the Society – Visions and Perspectives,” (co-authored by Robert Backhaus, UN-SPIDER, and Nicola Rohner, German Aerospace Center) highlighted UN-SPIDER as an example of a socially relevant space application programme. The discussions

following the presentation centred on UN-SPIDER’s collaboration with GEO/GEOSS and the International Charter “Space and Major Disasters”.

In Berlin UN-SPIDER was invited to take part in an expert panel during the 2-day conference on “Earth Observation: Solutions for Decision-Making” which was held during the Berlin Air Show ILA - 2008. The conference programme focused on two areas, Climate and Environmental Management and also Civil Security and Disaster Management.



Participants of the ITC training and workshop—Photo Credit: Cees van Westen

UN-SPIDER ORGANISES EXPERT MEETING IN SALZBURG

The “United Nations International UN-SPIDER Expert Meeting: Building Upon the Network of Regional Support Offices” was held at the magnificent Leopoldskron Castle in Salzburg from 7 - 9 February 2008. The meeting was attended by a selected group of 35 experts in the field of disaster management and/or space-based technologies, most of them having been involved in the process that led to the establishment of UN-SPIDER. The main discussion focused on ways and means of efficiently coordinating and interacting with the Network of Regional Support Offices, reviewing how they will contribute to the UN-SPIDER activities contained in the plan of work for the biennium 2008-2009.

In this regard four activities of the UN-SPIDER workplan were discussed in greater detail, namely Capacity Building (Activity 11), Knowledge Management and Transfer (Activity 7), Knowledge Portal (Activity 2) and support to National Disaster Management Planning and Policies (Activity 10).

The intense and far-reaching discussions led to several

recommendations on how to strengthen further the working relationships among the UN-SPIDER staff and the Network of Regional Support Offices, the National Focal Points and other partners, making sure that the UN-SPIDER programme builds upon available opportunities.



Delegates meeting during the 45th Session of the Scientific and Technical Subcommittee of the Committee on the Peaceful uses of Outer Space

Some participants continued on to Vienna in order to attend the forty-fifth session of the Scientific and Technical Subcommittee of the Committee on the Peaceful Uses of Outer Space, held from 11-22 February at the Vienna International Centre. The member States of the

Committee were provided with the “Report on activities carried out in 2007 in the framework of the United Nations Platform for Space-based Information for Disaster Management and Emergency Response” (A/AC.105/899 – <http://www.unoosa.org/oosa/en/unspider/docs.html>) and the Programme Coordinator of UN-SPIDER made a statement on the activities carried out in 2007 within the framework of the programme and on the activities to be carried out in the period 2008-2009.



Mr. Peter Zeil from the “Centre for GeoInformatics” (Z_GIS) at Salzburg University working with one of the break-out groups

DESIGNING THE UN-SPIDER KNOWLEDGE PORTAL

On 21 April, a kick-off Workshop “Conception and Design of a Global Web Portal for UN-SPIDER” was held in Potsdam, Germany. The knowledge portal is a core element of the UN-SPIDER Programme which will support users worldwide by supplying on-line information on available services and providers as well as in-depth information on systems, programmes and best practices, also providing an on-line communication platform and electronic publications. A critical feature of such a portal is the design of the user interface. The kick-off Workshop in Potsdam is the beginning of a cooperation between UN-SPIDER and the University of Applied Sciences, Potsdam, specifically with Prof. Frank Heidmann from the Department of Interface Design and Prof. Matthias Beyrow from the Department of Product Design.

Prof. Heidmann of Potsdam University began the workshop with a presentation on the Department of Interface Design’s methodological approach to User-Centred Design, and subsequently Prof. Beyrow focused on questions of visual reception and corporate design. Afterwards, students from the workshop split into working groups and went through various usage scenarios for the knowledge portal.

The first concept of the UN-SPIDER knowledge portal will be presented during the upcoming Second United Nations International UN-SPIDER Bonn Workshop: “Disaster Management and Space Technology - Bridging the Gap” which will be held in Bonn, Germany, from 13 to 15 October 2008.

UN-SPIDER REACHES OUT IN COP-9

Almost 7000 participants from 190 countries attended the “Ninth meeting of the Conference of the Parties to the Conven-

tion on Biological Diversity” and the “Fourth meeting of the Parties on the Cartagena Protocol on Biosafety,” both addressing the global issue of biodiversity loss. In the Expo of Diversity – a session for innovative concepts, products, ideas and projects - staff members from the UN-SPIDER Bonn office presented their mission and activities (pictured below). As a showcase, there was a case study of how earth observation satellite data was used to provide high resolution maps in the aftermath of a natural disaster.

Another UN-SPIDER exhibit displayed the use of satellite remote sensing to map biodiversity-related variables. The information material, facilitated by the Biodiversity Monitoring Transect Analysis in Africa (BIOTA), reflected the end-to-end chain from satellite data acquisition to the final derivation of biodiversity related maps and products to improve decision making and support political reporting mechanisms.

The crucial role of earth observation data for the conservation of biodiversity and sustainable development was also highlighted on several other occasions in the course of the conference. At a side event hosted by the European Space Agency—ESA, numerous speakers from various UN organisations underlined the important role of earth observation satellites in providing critical information for the implementation and assessment of several UN treaties related to biodiversity.



ENSURING ACCESS TO SPACE-BASED SOLUTIONS IN WESTERN AFRICA

The Nigerian National Space Research and Development Agency – NASRDA, and the Nigerian National Emergency Management Agency - NEMA organised a 2-day “Workshop on UN-SPIDER and the Role of the International Charter Space and Major Disasters” in Abuja, Nigeria on 21 – 22 May 2008.

The workshop had several objectives: first present an opportunity to have an overall discussion on the current status and needs in the area of space-based information for disaster management and emergency response in Western Africa, to discuss the role of UN-SPIDER in the region, define NASRDA’s leadership and role in setting up a regional support office to support UN-SPIDER activities in the region, and also how to make the International Charter Space and Major Disasters more accessible in the region.

The workshop was well attended with over 100 participants, from Nigeria as well as from Ghana, Cameroon, Burkina Faso, Niger, Kenya, Sudan, Mali, The Gambia,



Panel Participants from left to right: Mr. Joseph Akinyede, NASRDA, Mr. David Stevens, UN-SPIDER and Mr. Paul Stephens, DMCII.

the United Kingdom, Senegal and Algeria.

NASRDA, through the Disaster Monitoring Constellation - DMC, is part of the International Charter Space and Major Disasters. This provides a unique opportunity for all countries in Western Africa to be able to access the Charter through Nigeria. The proposed UN-SPIDER Regional Support Office for Western Africa will have a major role in facilitating wider access to these opportunities.



Participants of the “Workshop on UN-SPIDER and the Role of the International Charter Space and Major Disasters” in Abuja, Nigeria on 21 – 22 May 2008.

UN-SPIDER provided a major support to the success of the workshop, using funds provided by the Government of Austria (through the Austrian Federal Ministry for Transport, Innovation and Technology) to fund the participation of eight participants from countries within the region. The Programme Coordinator of UN-SPIDER also participated in the workshop, delivering one of the keynote presentations and also chairing the discussions on the “Linkages and Capacity Building for Disaster Management for Western Africa”.

EXERCISE FOR RAPID DISASTER RELIEF WITH SPACE-BASED TECHNOLOGIES

From 7 - 13 June 2008, in Cyprus, UN-SPIDER and disaster management experts from the European Union tested a satellite-based system to monitor disaster areas. The exercise took place in the framework of the EU-project LIMES (Land and Sea Integrated Monitoring for European Security), which develops and applies satellite-based technologies in the security field. Participants trained for emergencies under realistic conditions of a simulated earthquake and a tsunami near the southern coast of Cyprus.

The rapid access to such information is crucial as demonstrated once again during the earthquake in China and the cyclone in Myanmar. Rescue teams need to find out as soon as possible what type of aid is needed and where. With such space-based information relief workers can receive information on changing conditions such as blocked roads and movements of displaced persons. They can then synchronise their observations on the ground with the satellite images and feed the data to a specialised network via satellite. The system used

during the training exercise in Cyprus is still a prototype, but soon all involved organisations will be able to access the data directly through the network and supplement the data received with their own information. The aim is to speed up the analysis of disaster areas so that needed support arrives as soon as possible.

UN-SPIDER is working to ensure that similar solutions are accessible and available to all countries, directly supporting emergency response and relief efforts.

Namibian Floods

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UN-SPIDER worked closely with the Hydrological Services in Namibia guiding them in accessing space-based information including from the International Charter "Space and Major Disasters", an international mechanism for the acquisition and delivery of satellite imagery to end users supporting relief efforts.

Mr. Van Langenhove and UN-SPIDER coordinated with the Country Office of the United Nations Development Programme (UNDP) in Namibia to request satellite data

of the flooded regions. On March 14th, UNOOSA triggered the International Charter "Space and Major Disasters" at the request of the UNDP Country Office to help Namibia deal with the floods and prevent the outbreak of cholera. UN-SPIDER also guided Mr. Van Langenhove through the process of receiving assistance from Germany's Center for Satellite Based Crisis Information (ZKI). As a result, ZKI provided satellite-derived maps, additional to the Charter products provided, with new high-resolution radar satellite imagery.

UN-SPIDER will continue working with the Government and help Namibia to access and use space-based information for disaster management.



UN-SPIDER and disaster management experts from the European Union testing a satellite-based system to monitor disaster areas.

UN-SPIDER BONN OFFICE FULLY OPERATIONAL

The UN-SPIDER Bonn Office was inaugurated 29 October 2007, on the first day of the three-day international workshop, "Space-based Information and Solutions for Disaster Management and Emergency Response". The workshop was organised jointly by the United Nations Office for Outer Space Affairs (UNOOSA) and the German Aerospace Center (DLR), to promote the access and use of space-based technologies and solutions for disaster management and emergency response within the relevant communities. The following organisations also contributed to the workshop: UNU/EHS, UNESCO, ISDR/PPEW, GEO, and DKKV (German Committee for Disaster Reduction). Financial support to the workshop was also provided by several private companies including Infoterra, RapidEye and LogicaCMG.

The workshop brought together over 90 experts from 35 countries. The programme of the workshop was centred on the activities assigned to the Bonn office. It included plenary sessions, during which 11 presentations were given, and discussion sessions, in which participants were divided into four working groups. Group 1 discussed the platform for fostering alliances and user requirements, in coordination with task DI-06-09 of the Global

Earth Observation System of Systems (GEOSS), Group 2 also discussed the platform for fostering alliances but focused on horizontal coordination, Group 3 discussed the knowledge portal and Group 4 discussed knowledge management and capacity-building (activity 11, in coordination with GEOSS task CB-07-02). More information on the outcome of the workshop and the presentations made during the workshop are available at <http://www.unspider.org>.

The Second United Nations International UN-SPIDER Bonn Workshop: "Disaster Management and Space Technology - Bridging the Gap" will be held from 13 to 15 October 2008.



Participants of one of the break-out groups of the of the three-day international workshop, "Space-based Information and Solutions for Disaster Management and Emergency Response" held in Bonn, Germany

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. Headquartered in Vienna, Austria, UNOOSA maintains a website at <http://www.unoosa.org/>.

In its 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 programme within UNOOSA. UN-SPIDER focuses on the need to ensure access to and use of space-based solutions during all phases of the disaster management cycle.

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