

UN-SPIDER's efforts in flood and drought risk management

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UNITED NATIONS
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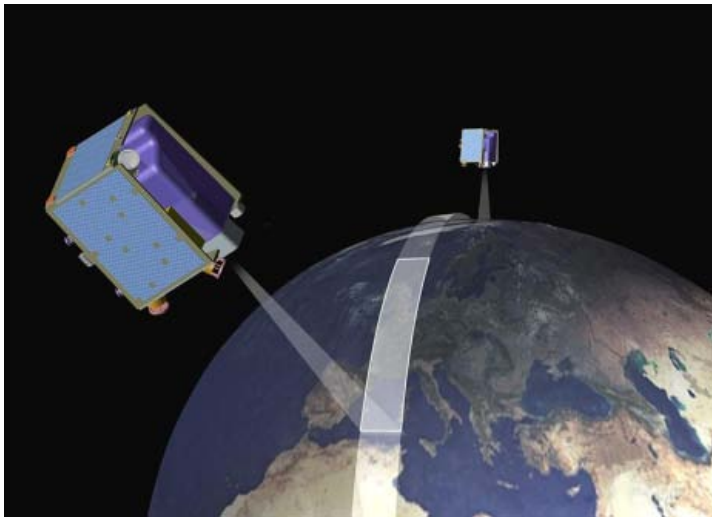
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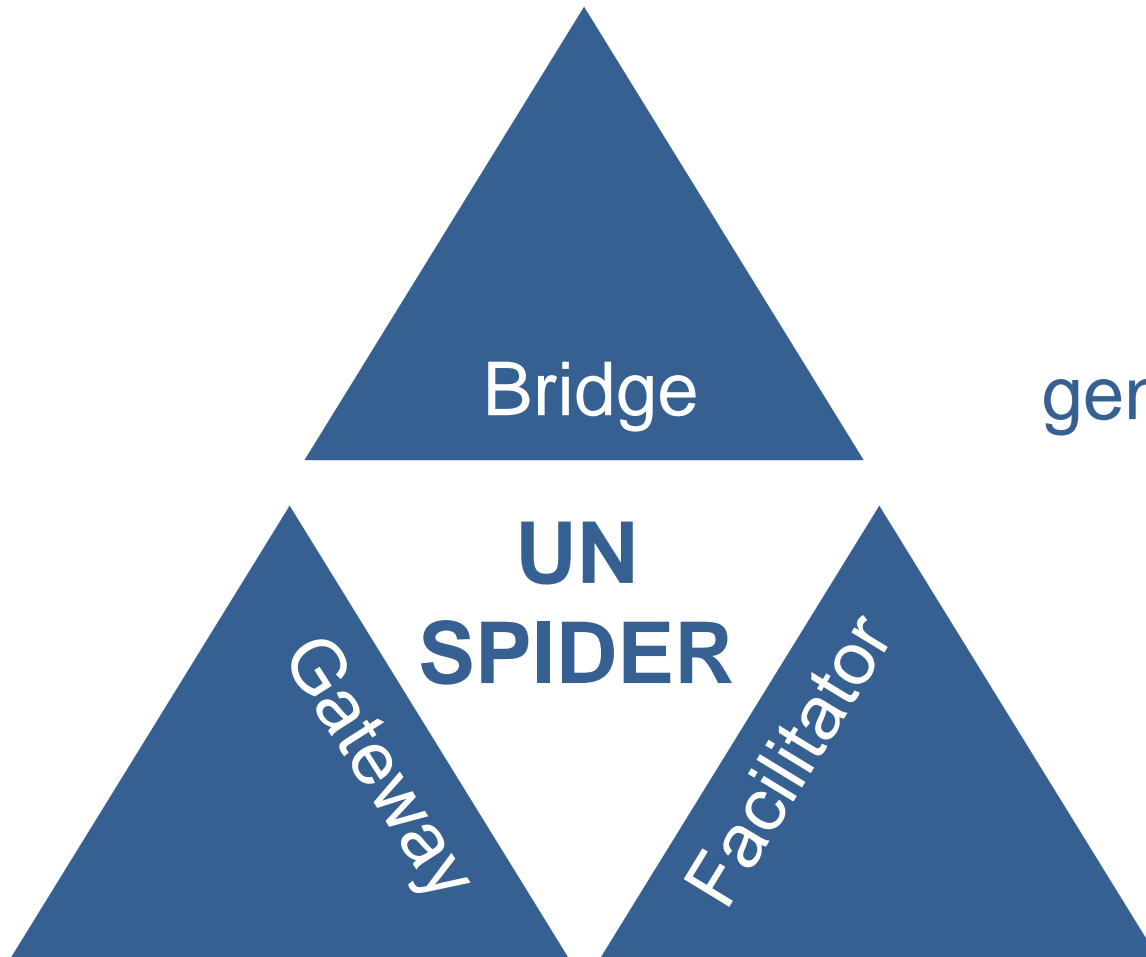
UN-SPIDER: Mission statement



„Ensure that all countries have access to and develop the capacity to **use all types of space-based information** to support the **full disaster management cycle.**“



In which way



Enabling
institutions to
generate and use
space-based
information



Global offices



Bonn



Vienna



Beijing



Network of Regional Support Offices



★ REGIONAL SUPPORT OFFICE



Technical Advisory Missions (2008 – 2014)





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Publications

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NEWSLETTER
February 2014 Vol. 1/14

**In Focus
Space Technologies in the UN - Global Views for Global Challenges**

Disasters triggered by natural hazards such as floods, droughts, storms or fires affect millions of people every year and result in billions of dollars in economic losses. The United Nations States' capacities to reduce disaster risks, to foster resilience and to respond effectively to such disasters.

Space technologies play an important role in this context and contribute to sustainable development as the UN development paving the way to the post-2015 development framework "The future we want" explicitly points out. These technologies can cover large areas at once regardless of borders or weather conditions and allow for precise positioning or tele-communications

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It is especially challenging for developing countries to access and effectively use space technologies due to a lack of funding, a lack of awareness or a lack of staff with the necessary skills. Capacity building and institutional strengthening are therefore at the core of numerous United Nations efforts, such as in the case of ECA and ESCAP.

These case studies are examples of the extremely valuable work carried out throughout the entire UN system, not only by the agencies mentioned in the publication, but also by UNGIWG/ICAN, UNEP, WFP, WHO, UNCTAD, UNEP, WMO, WFP, WHO, UNU, and others. In order to streamline the use of geospatial information in the UN and to foster inter-agency coordination and collaboration, UN member states and experts from the United Nations Geographical Information Working Group (UNGIWG).

Integrating Geospatial Data for Disaster Prevention, Assessment and Monitoring in Africa



The regions most triggered by natural hazards are countries such as Africa, Asia, Europe, North America and South America.

The AGS is to elaborate a map of agricultural hot spots, starting with the year 1981 when the Sahel was severely affected by drought. The most affected year by drought of the time series is 1989 when most of the agricultural land suffered from water scarcity. At the end of the first ten day cycle of agricultural area (AGS) were detected in Argentina, Brazil, Madagascar, Mozambique and Tanzania.

From the global version of AGS, which hot spots on the globe, standbore agricultural drought at country or regional level. The standard version would be calibrated with local agricultural statistics and they would use specific parameters, coefficients and means of the main crops of the country or region. AGS will become operational and accessible on the GISC website in February 2014.

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Natural Drought Worldwide - from Space

included in many different environmental conditions around the globe, including Asia, Africa, Europe, North America and South America.

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MAY 2014 UPDATES

UN-SPIDER at a glance

New brochure on UN-SPIDER available

UNOOSA/UN-SPIDER published a new brochure. The 16 page document illustrates UN-SPIDER's field of work and activities and explains why space technology is so relevant for disaster risk reduction and emergency management. It gives various examples of space applications and presents unique UN-SPIDER's different areas of work including knowledge management, technical advisory support, and partnerships.

Read more: [Knowledge Portal](http://www.un-spider.org)

UN-SPIDER speaks at International Peace Institute Seminar

On 13 and 14 May 2014, the International Peace Institute in Vienna organized the seminar "War and Peace in a Digital Age". UN-SPIDER's Senior Programme Coordinator, Luc St-Pierre, was invited to speak about UN-SPIDER during the session "Technology for Peace". In his presentation, Mr. St-Pierre presented the scope of work and the strategic goals of UN-SPIDER and highlighted the relevance of satellite technologies for humanitarian purposes, such as disaster risk reduction or emergency management. He urged for an improved coordination in the use of these technologies so that all countries can access and use them for an improved disaster risk management. A recording of the webcast is available online.

Read more: [Knowledge Portal](http://www.un-spider.org)

UNOOSA co-chairs 14th UNGIWG Plenary Meeting in New York

The United Nations Geographical Information Working Group (UNGIWG) held its 14th Plenary Meeting in New York from 14 to 16 May 2014, co-chaired by UNOOSA and UNDS (Department for Safety and Security). The event was organized back-to-back with the 34th Interagency Meeting on Outer Space Activities (UN-Space). Several UNGIWG member organizations presented their work during the meeting. OOSA presented among other topics the work

of the International Committee on Global Navigation Satellite Systems (ICG) Working Group, especially the recommendations related to reference frames, timing and applications. Formed in 2000, UNGIWG is a network of UN professionals working in the fields of cartography and geospatial information management science to address issues of common concern.

Read more: [Knowledge Portal](http://www.un-spider.org)

UN-SPIDER participates in International Symposium of Integrated Disaster Risk Governance

On 8 and 9 May 2014, UN-SPIDER participated in the International Symposium of Integrated Disaster Risk Governance in Beijing. The event was jointly organized by the United Nations International Strategy for Disaster Reduction (UNISDR), the China National Commission for Disaster Reduction (NCDR), the Ministry of Civil Affairs of China, and the Ministry of Education of China. The symposium is part of the on-going multi-level and multi-theme consultations for the inputs to the post-2015 Framework for Action. UN-SPIDER's expert Mr. Shih-Rawn Chai presented Session 2 of the symposium on "Government Role and Governance". He gave a presentation entitled "The Space Technology Contributing Enough to DRR - Challenges with Respect to Implementation of HFA and HFA2". His presentation is available online.

Read more: [Knowledge Portal](http://www.un-spider.org)

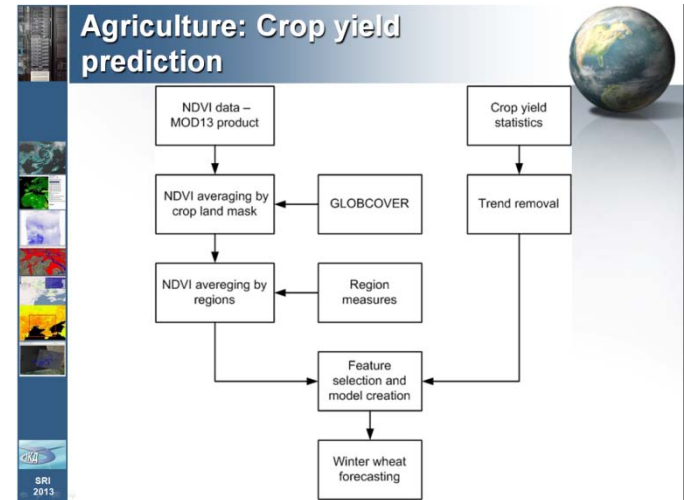
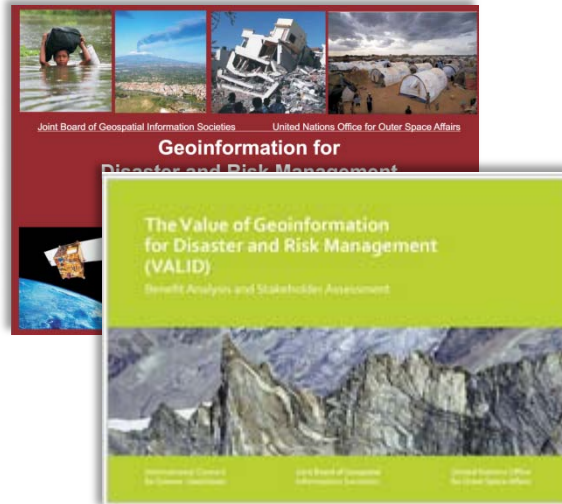
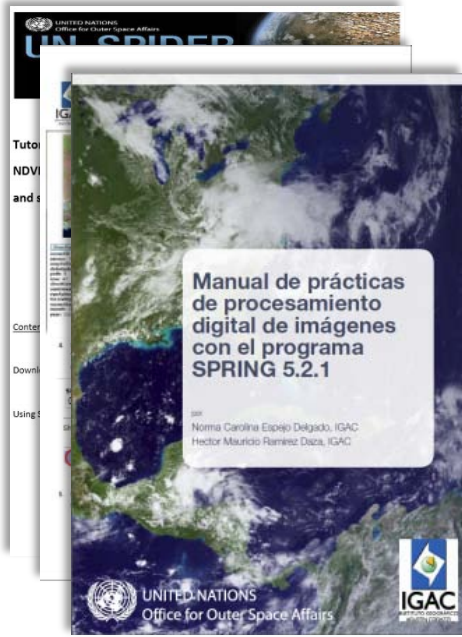
Floods in Balkan: UN-SPIDER compiles list with satellite resources

In mid-May 2014, Serbia, Bosnia and Herzegovina and Croatia experienced the worst flood in over 120 years. The extreme floods had been caused by heavy rainfall during these days, from 14 to 16 May 2014. In Bosnia, one third of the country was flooded affecting over one million people. In Serbia, tens of thousands of people had to be evacuated from their homes. UN-SPIDER compiled a list with freely

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Generation of additional Knowledge:



Publications

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Disaster risk management



The concept and practice of reducing disaster risks through efforts to analyze and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, and improved preparedness for adverse events.



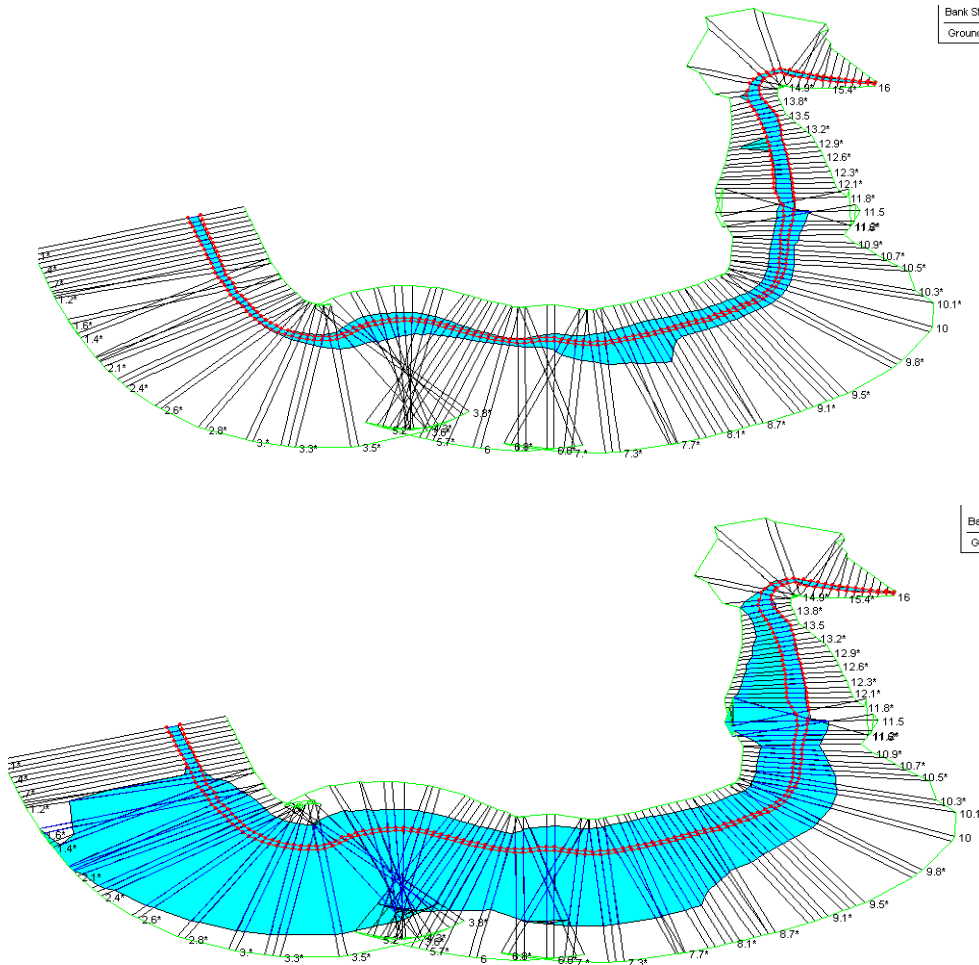
Flood risk management



- Incorporating strong land-use planning regulations as a way to reduce the number of vulnerable assets or elements exposed to floods;
- Reducing the degree of vulnerability of the elements or assets exposed to floods;
- Incorporating physical measures such as levees as a way to control the extent of floods in particular geographic regions;
- Establish flood early warning systems.



Flood hazard assessment



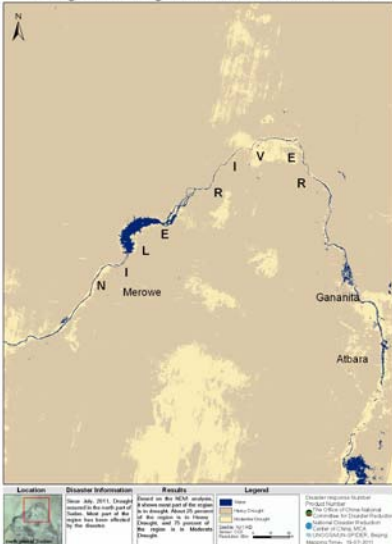
- Normally carried out using hydraulic modeling;
- Making use of cross sections along the channel where floods can take place;
- Modeling which areas can be flooded according to the amount of discharge in the channel of the river;
- Can benefit from the use of remote sensing products.



Drought risk management



Drought Monitoring with HJ-1 in the north of Sudan



- Developing a map of vulnerable crops according to the type of vulnerability of each type of crop;
- Reducing the degree of vulnerability through the incorporation of more drought resistant crops;
- Establish drought early warning systems.



Remote sensing and drought

Vegetation Condition Index (VCI)

$$VCI_i = \frac{NDVI_i - NDVI_{min}}{NDVI_{max} - NDVI_{min}}$$

Temp. Condition Index. (TCI)

$$TCI_i = \frac{BT_{max} - BT_i}{BT_{max} - BT_{min}}$$

Vegetation Stress Index (VHI)

$$VHI = a * VCI + (1-a) * TCI$$

Low value

High value





UN-SPIDER efforts on flood and drought risk management



- Conduction of conferences and expert meetings on these topics;
- Promoting the development and methods using space-based data to generate products;
- Contributing to awareness raising and capacity building on the use of such methods.



Expert meetings, workshops, conferences

Multi-hazard disaster risk assessment, Beijing 2014.
Early warning, San Salvador 2014.
Disaster risk identification, assessment and monitoring, Beijing 2013.
Early warning, Bonn 2013.

Crowdsource mapping, Vienna 2012.
Improving hazard mapping, Badulla 2012.
Drought monitoring, assessing and planning under global climate change, Beijing 2012.





Knowledge Portal

Links and Resources including metadata and links to data sets and software for flood and drought risk management and a database on training opportunities

Space Application Matrix with case studies on the use of remote sensing for floods and droughts mitigation and preparedness

Step-by-step procedures for **Recommended Practices** including flood hazard mapping and drought monitoring





On our way to Sendai 2015



UN World Conference on
Disaster Risk Reduction
14-18 March 2015, Sendai, Japan

International Symposium of Integrated Disaster Risk Governance, Beijing, May 2014

International Conference "New Partnerships for Disaster Risk Management", Berlin, 16 June 2014

Pre-Conference Consultation Event of the 6th Asian Ministerial Conference on Disaster Risk Reduction (AMCDRR), Bangkok, 22-26 June 2014

2014 Understanding Risk Forum, London, 30 June-2 July 2014

1st session of the Preparatory Committee (PrepCom1) of the 3rd UN World Conference on Disaster Risk Reduction, Geneva, 14-15 July 2014



**One final
thought:
we are
contributing
to help people
visualize
those risks
which they do
not perceive...**

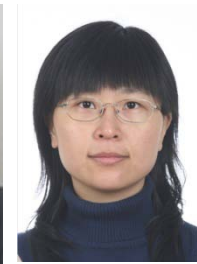


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Thanks for your kind attention

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