



NEWSLETTER

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In focus

Connecting knowledge – UN-SPIDER’s Knowledge Management

When tackling a disaster situation or when assessing the risk of a potential disaster, knowledge is the key. Disaster and disaster-risk managers face the challenge of identifying knowledge keepers, information focal points and data sources – sometimes under the pressure of extremely short timeframes. Finding the right path from data to information to knowledge is not always easy in a world where we tend to be rather overwhelmed with information. UN-SPIDER has therefore identified effective knowledge management as a crucial parameter in facilitating the use of space-based information for the entire disaster management cycle.

As a bridge between stakeholders, UN-SPIDER’s knowledge management efforts are targeting the intersection of disasters and space applications. The communities involved are quite heterogeneous and so are the approaches for being a knowledge broker for these stakeholders. The needs and prerequisites of the disaster, disaster-

risk, and space communities can vary considerably from region to region and include a variety of actors ranging from local emergency responders, to national and regional policy makers and decision-makers, from space programme managers and commercial providers to technical specialists and scientific researchers. In order to bring all these stakeholders to the same table, UN-SPIDER organizes expert meetings and conferences and continuously builds on its international network of Regional Support Offices and National Focal Points. Additionally, the programme’s Advisory Support Missions give Member States concise input how to incorporate space-based information in national or local risk management and emergency response policies.

Yet, knowledge management is more than giving people access to data, information or giving them a platform to exchange ideas and lessons learned. The challenge is to systematically and continuously compile

the knowledge held by individuals and institutions in the form of standard operating procedures, know-how or experience which is sometimes documented and sometimes not. Subsequently, the compiled knowledge has to be processed and disseminated in a global and user-friendly way to make sure it reaches its stakeholders.

UN-SPIDER is an international approach to close the existing knowledge gap regarding space-based information for disaster and risk management. As a knowledge broker, UN-SPIDER has established a web-based portal that serves as a knowledge hub, accessible to everyone. This portal makes available contact data, case studies, technical details of space technologies, data acquisition mechanisms, application methods, current events and news from the communities. Every user is guided to the information that is relevant and useful to him or her. This Newsletter invites you to take a closer look at this unique Knowledge Portal and to explore what it can offer to you.

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The UN-SPIDER Knowledge Portal

www.un-spider.org

Learn about the potential of space-based information for disaster and disaster risk management

UN-SPIDER's knowledge management efforts target end-users and decision makers of the disaster and disaster risk management communities as well as representatives of the technical space community - may they be from the private sector, space agencies or research facilities. Our goal is to raise awareness among all stakeholders of the importance of merging space technologies and disaster management. Therefore, the Knowledge Portal offers entry points to explore the many options of the application of space-based information for disaster and disaster risk management and points out end-users' needs.

Our **News section** (un-spider.org/about-us/news) gives a very broad overview of the activities in all communities involved. Learn about the use of space-based resources in current disasters, the latest developments of UN efforts, the publication of studies and other relevant research developments, satellite launches or disaster trends. Search for your topic of interest by keyword or on our UN-SPIDER World.

in order to always be up to date, you can subscribe to the RSS feed or follow our news and events announcements on Facebook, Twitter or Google+.

Our Guides offered in the **Knowledge Base section** (un-spider.org/knowledge-base) start you off into the world of space-based information for disaster management. For example, the Technology Guides provide an overview of different satellite missions relevant for disaster management applications. The Disaster and Risk Management Guides offer information on different types of hazards.



Find out whom to contact

In disaster risk management as well as in emergency response, it can be crucial to get the needed information quickly. Our **Network section** (un-spider.org/network) presents you contact details and further background information on all of our Regional Support Offices and National Focal Points. This way, you can find the relevant contacts for your country or region.

Our **Institution Guides** (un-spider.org/knowledge-base/institutions-guides) furthermore provide you with a broad inventory of over 200 relevant institutions from the space or disaster and risk management communities and link you to their websites. You can browse our database by country, keyword or alphabetical order to identify your institutions of interest.



Space-based information for disaster

Explore application methods and access to space-based information

You find the opportunities of space-based information relevant for your field of work, but you want to learn more about actual applications, technologies or you wonder how you can access or leverage satellite data in your country? The Knowledge Portal offers various tools allowing you to familiarize yourself with the practical aspects of using space technologies for disaster and disaster risk management.

Our **Space Application Matrix** (un-spider.org/space-application-matrix) in the **Space Application section** of the Knowledge Portal refers you to hundreds of case studies, research papers or other interesting documents. The Matrix is an interactive search engine designed to lead the way to results tailored exactly to your needs. By choosing a hazard (for example floods, earthquake or fire), a phase of the disaster management cycle (ranging from mitigation to recovery) and a space technology (satellite communication, satellite navigation or Earth Observation/Remote Sensing), you will be led to documents relevant to your specific situation, expertise or area of interest. Apart from the hazards covered in the Matrix, you can also look up documents relating to human aspects such as health, infrastructure, humanitarian issues or security by clicking this option on the bottom of the Matrix wheel.

Access to satellite data that is both relevant and affordable can be a huge challenge for disaster or disaster risk managers. In the Knowledge Portal, we guide you to international mechanisms that facilitate access to satellite image derived products such as disaster or risk maps. These mechanisms include the International Charter: "Space and Major Disasters", the European GIO EMS (Copernicus), Sentinel Asia or Servir. The **Organisational Mechanisms section** (un-spider.org/space-application/organisational-mechanisms-guides) presents details of the eligible user groups of these services, request procedures and disaster situations that are covered by the mechanisms.

For newcomers to the field of space-based information for disaster management and emergency response and for experts alike, it is important to stay in touch with the community. The right contacts and the right capacities can lead the way to an improved use of satellite products and services. Our **Events Calendar** (un-spider.org/about/events) and our **Training Database** (un-spider.org/capacity-building-guides/training-opportunities) therefore guide you to the right conference, workshop, expert meeting or training so you can keep abreast of all new developments.

In the future, the UN-SPIDER Knowledge Portal will also host more specific how-to instructions regarding satellite-derived products, for example regarding the access

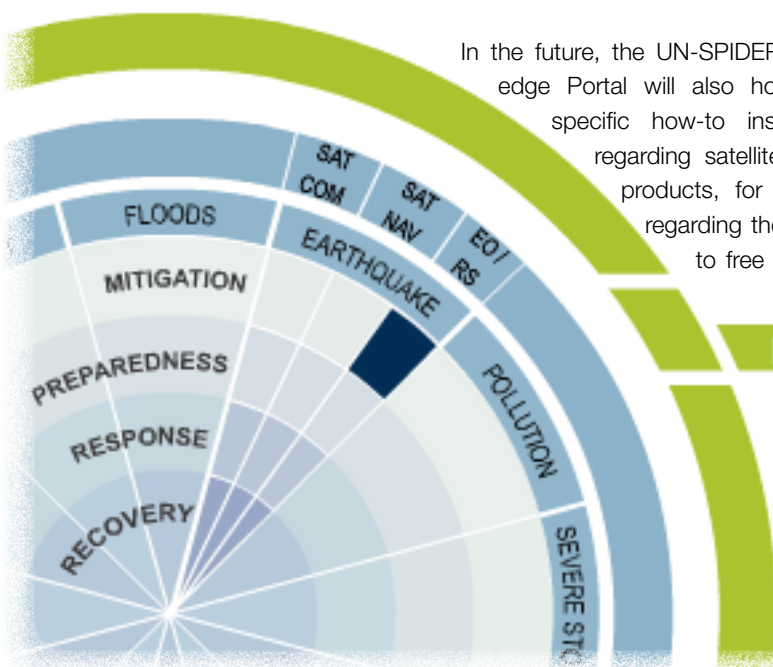
to free of charge archived satellite imagery and the production of maps.

Responding to emergencies

In a disaster situation, responders need damage and needs assessments to become aware of the impacts. A satellite image with an overlay of the affected area provides an accurate picture as it represents the most up-to-date figures on the affected areas. It allows you to count the number of houses affected and to identify roads and highways which may still be used to deliver humanitarian assistance. The identification of helicopter landing sites with coordinates derived from satellite-assisted navigation and positioning can further facilitate the delivering of humanitarian assistance and goods. Discover these and other applications in the Space Application Matrix.

Improving early warning

In the context of early warning, the identification of the location of vulnerable communities and critical infrastructure which may congregate vast amounts of people is of the essence when designing warning schemes (who to warn first) and evacuation routes to bring those at risk to safe areas. Satellite images, like those which can be viewed in Google Earth, allow those in charge of designing and operating early warning systems to become aware of the most up-to-date figures on exposed communities and critical infrastructure such as churches or religious temples, government buildings, cinemas, and commercial areas. The scientific and technical articles in the Space Application Matrix will tell you how.



Mitigation - Earth Observation / Remote Sensing

3D Damage Visualization and Animation

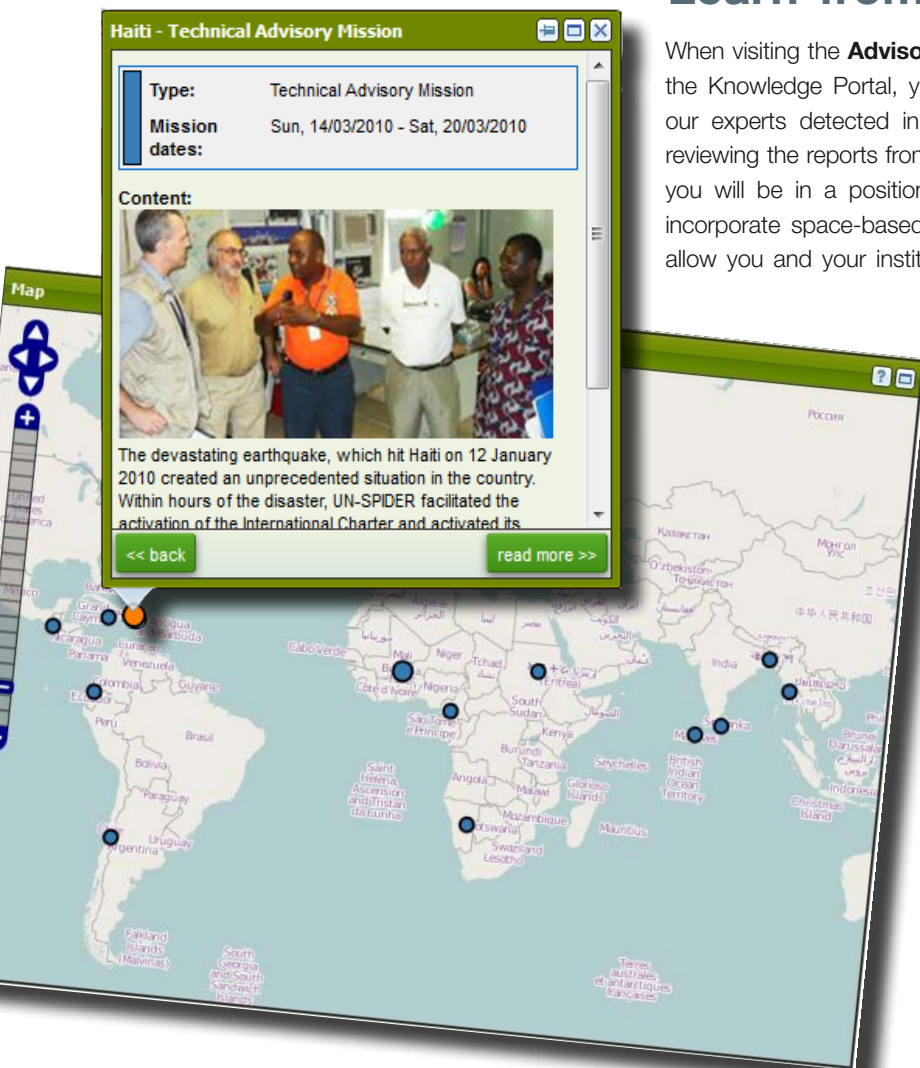
Crustal Deformation

Urban Classification for Risk Analysis



and disaster risk management

Learn from other countries



When visiting the **Advisory Missions section** (un-spider.org/advisory-missions) of the Knowledge Portal, you can quickly become aware of the critical issues that our experts detected in their various Advisory Missions all over the world. By reviewing the reports from the missions conducted by UN-SPIDER and its experts, you will be in a position to identify how government institutions can effectively incorporate space-based information into their policies and procedures. This will allow you and your institution to learn how to take first steps towards managing disaster risks more effectively and to respond to disasters in a more timely way.

These critical issues include:

- **Policies** to incorporate the use of all types of information, including the ones derived from satellite applications;
- **Spatial Data Infrastructures (SDIs)** as a way to enhance the capacity of government institutions to exchange data quickly;
- Specialized **training activities** that will allow you and your peers to assess the geographical extent of disasters and their impacts more precisely through the use of Remote Sensing applications;
- The access to data and products provided by **international mechanisms** set up by the space community such as the International Charter: "Space and Major Disasters".

Learn what kind of Advisory Support UN-SPIDER offers

UN-SPIDER's Technical Advisory Support is one of the programme's most important pillars. The **Advisory Support Section** (un-spider.org/advisory-support) on the Portal showcases for you what kind of support UN-SPIDER provides to requesting Member States.

Upon request of a Member State, UN-SPIDER carries out missions with a team of experts to the host institution. The goal is to jointly identify the existing national capacity to access and to use space-based information and to shed light on possible constraints and gaps. This support can take many forms: It can be a series of meetings, a workshop or a training, depending on the needs and scope of the request. Reports, results and recommendations of these different types of support are accessible on the Knowledge Portal by category (Technical Advisory Mission, Institutional Strengthening Mission and Expert Mission) and via the UN-SPIDER World Map.

Find out how UN-SPIDER has promoted and supported the use of space-based information for disaster and disaster risk management in countries all over the world. Maybe this type of support could be interesting for your country, as well.

Dr. Robert Backhaus, Senior Expert for Knowledge Management

Dr. Robert Backhaus has been seconded by the German Aerospace Center (DLR) to support the UN-SPIDER Bonn Office since its establishment. Robert was one of the main drivers to set up UN-SPIDER's Knowledge Portal and is leading the development of the Portal's scientific and technical content.

Robert, the internet is a vast realm of information, virtually everything I want to know seems just a click away. In your opinion, how does UN-SPIDER's Knowledge Portal provide added value to the end-user seeing what is already out there?

It's mainly a question of how to research, select, interlink, and display all the material out there which can serve our users' needs but is dispersed over a wide range of sources and communities. In essence, we are assembling for our users all the relevant information about the application of space technology and space-based services to disaster and disaster risk management. Indeed a lot of useful information is provided all over the internet, but due to the complexity of our field it will need quite some research to be explored. Our users, especially those who are involved in emergency response and humanitarian aid operations, cannot be expected to do lengthy web research. But also planners and decision-makers working on more long-term issues like disaster risk reduction or disaster preparedness need an easy and user-friendly access to explore what the application of space-based information can contribute to their efforts. Therefore, we provide both disaster and disaster risk managers with all the information they need to involve space-based information in their work in one place: Our Knowledge Portal. For our target group on the other side of the scope, the space community, it is useful to be informed on organizational issues and needs in disaster risk management and emergency response, in order to streamline mission plans and research and development activities according to operational needs. We provide them this information.

Users frequently mention the fact that the Portal does not give direct access

to raw satellite data even though access to such data is a huge obstacle that disaster and disaster risk managers face. Why doesn't UN-SPIDER provide such data?

Because UN-SPIDER is neither mandated nor equipped to do so. And there are several good reasons for that. For one, it is not UN-SPIDER's mission to duplicate the efforts of data providers and established data distribution mechanisms like the International Charter: "Space and Major Disasters". Our mandate is to inform on the ways of access, not to deliver the products in a technical sense. Apart from that, each case of user needs is different, and quick access to just raw data is not the one-size-fits-all solution. Depending on the desired end product, specific capacity for data processing, integration and transfer is needed. This is why Technical Advisory Support and capacity building are crucial elements of UN-SPIDER's knowledge management and transfer activities. For the future, I am also convinced that immediate and flexible user access to satellite data will be greatly facilitated by standard applications which are being developed in the context of sensorweb technology.

What is the biggest challenge that the Knowledge Portal faces in terms of information compilation?

That is doubtless the sheer amount and specificity of technical information which is (thankfully) relevant to disaster management, and which is (thankfully again) continuously developed. That means not just compiling, evaluating, structuring, and editing; but also a lot of reviewing, and updating. The Space Application Matrix on our Portal, which serves as an animated search function and as a structural tool to



organize relevant content, generates a total of 192 fields, each of them characterizing a specific situation where space application might (or might not) be useful. It is our goal to continue filling this matrix with case studies and research papers, and to update and condense the content where necessary.

What is the way forward for the UN-SPIDER Knowledge Portal?

The overarching goal is to make the Portal as such more user-friendly in terms of structure and content. At present, we are preparing a roadmap to guide us on this way, based on the results of the 2012 Knowledge Portal evaluation by the global user community and external experts. As a crucial step forward, we see the establishment of a Global Network of Scientific Mentorship, as recommended at the 2012 Bonn Workshop. Additionally to more scientific content, we want to focus more on practical step-by-step instructions, for example on the use of space-based information for the mitigation of floods and droughts. This is a field where, among others, we are closely cooperating with our Regional Support Offices. In particular, valuable contributions have been provided already by SUPARCO (Pakistan) and ISA (Iran). And I won't miss this opportunity to thank them for their effort, as well as all our partners who are adding to the UN-SPIDER knowledge pool.

UN-SPIDER's World of Knowledge Management

UN-SPIDER's Knowledge Management is tackling two issues. First, we are aiming at raising awareness about the potential and about the usefulness of space-based information for managing disasters and disaster risks. Our goal is that policy makers, technology providers and field-based end-users likewise recognize how valuable space-based information can be when dealing with disasters and disaster risks. Second, our knowledge management activities are all about enabling disaster and disaster risk managers to identify how they can best make use of space-based information in their specific situation and according to their specific needs. We have developed a variety of tools and instruments for both issues, with the Knowledge Portal at the core.

KNOWLEDGE PORTAL

Over 7000 visits per month
Over 3500 content items

EVENTS

Over 25 international conferences
and workshops since 2008

ADVISORY SUPPORT

Over 40 Advisory Missions carried out
since 2008

NEWS

15 Newsletters and
55 monthly Updates published

NETWORK

15 Regional Support Offices
47 National Focal Points

DOCUMENTATION

Over 250 conference/workshop presentations

SOCIAL MEDIA

Over 4500 followers on 3 channels

PUBLICATIONS

Over 750 downloads of the booklet on
Experiences and Best Practices

MAILING LIST

17500 subscribers



UNITED NATIONS

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.
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