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Office for Outer Space Affairs



Ministry of Civil Affairs
People's Republic of China

United Nations International Conference on Space-based Technologies for Disaster Management

“A consolidating role in the implementation of the Sendai Framework for Disaster Risk Reduction: 2015-2030”

Organized by the

UN platform for Space-based Information for
Disaster Management and Emergency Response
(UN-SPIDER)

and the

Ministry of Civil Affairs of the People's Republic of China

14-16 September, 2015

Beijing, China

In collaboration with

Department of Treaty and Law
Ministry of Foreign Affairs of the
People's Republic of China

Department of Social Security
Ministry of Finance of the
People's Republic of China

Department of Systems Engineering
China National Space Administration (CNSA)

Asia Pacific Space Cooperation Organization
(APSCO)

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5TH Annual UN-SPIDER Conference in Beijing

United Nations International Conference on Space-based Technologies for Disaster Management - “A consolidating role in the implementation of the Sendai Framework on Disaster Risk Reduction: 2015-2030”

Organized by the
United Nations Office for Outer Space Affairs (UNOOSA)
and the
Ministry of Civil Affairs of the People’s Republic of China

UN-SPIDER is the United Nations Platform for Space-based Information for Disaster Management and Emergency Response, a programme implemented by the United Nations Office for Outer Space Affairs (UNOOSA). The UN-SPIDER Beijing Office is pleased to announce the **“United Nations International Conference on Space-based Technologies for Disaster Management - “A consolidating role in the implementation of the Sendai Framework on Disaster Risk Reduction: 2015-2030”**, from **14 to 16 September 2015**.

The main aim of the conference is to produce an outcome document with guidelines to Member States to integrate Earth observation and geospatial technologies in implementing the Sendai Framework for Disaster Risk Reduction: 2015-2030. The conference will build upon the outcomes of the Third United Nations Conference for Disaster Risk Reduction (WCDRR) (Sendai, Japan, March 2015) and on the related commitments of UNOOSA:

- Facilitate the coordination of Earth observation (EO) stakeholders as proposed in the White Paper *“A global partnership for Earth observation to support nations in their disaster risk reduction efforts”*¹;
- Hold the *United Nations/Germany International Conference on Earth Observation: Global solutions for the challenges of sustainable development in societies at risk* (Bonn, Germany, 26 to 28 May 2015)²;
- Continued promotion of EO benefits to sustainable development towards the Summit on Sustainable Development Goals (NY, September 2015) and the 21st Conference of the Parties to UNFCCC (Paris, December 2015).

Thus, the conference is one more step in that long-term effort of UNOOSA and UN-SPIDER building on the commitments of the Sendai Framework and of the global development agenda. One of the unique features of the conference is to integrate Earth observation and space-based technologies to applications of disaster risk reduction (DRR). The efforts of UNOOSA are also under the umbrella of its preparation to UNISPACE+50 which will mark in 2018 the 50th anniversary the First United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE). A series of events leading to UNISPACE+50 will address challenges to humanity and sustainable development, the protection of the space environment, and securing the long-term sustainability of outer space activities.

¹ <http://www.wcdrr.org/conference/events/877>

² www.un-spider.org/post2015



Rationale

The UN-SPIDER Beijing Office has successfully organised four conferences since 2011. Previous conferences covered the themes of “Best practices for risk reduction and rapid response mapping” in 2011, “Risk assessment in the context of global climate change” in 2012 and “Disaster risk identification, assessment and monitoring” in 2013 and “Multi-hazard disaster risk assessment” in 2014. These conferences offered a forum for disaster management communities and experts to strengthen their capabilities in using space-based information to identify, assess, monitor and respond to disaster risks and integrate space technology into long-term disaster risk management efforts.

The Third United Nations World Conference for Disaster Risk Reduction (www.wcdrr.org) took place from 13-18 March 2015 in Sendai, Japan. 187 States were officially represented in the conference and the “Sendai Framework for Disaster Risk Reduction: 2015-2030” was adopted on March 18, 2015. Recognizing the current challenges in the use of Earth observation technologies in disaster risk reduction, UNOOSA co-organised a working session on “Earth observation and high technologies to reduce risks” at WCDRR and promoted the role of Earth observation for its inclusion in the “Sendai Framework for Disaster Risk Reduction: 2015-2030”. The additional outcome of the working session is the launch of the Global Partnership to develop a synergy framework for Earth observations in support of national strategies for disaster-risk management.

UN-SPIDER works at demonstrating how the use of Earth observation can strongly support the full cycle of disaster risk management and how it can provide means for users and providers to better communicate their needs and capabilities.

With this aim, the conference focuses on the consolidating role of Earth observation technologies in the implementation of the “Sendai Framework on Disaster Risk Reduction: 2015-2030”. Efforts need to be taken to promote use of space-based information to help assess potential risks and hazards before disasters occur and contribute to risk-based developmental planning. The conference will synthesize experiences and lessons learnt by the experts and end users involved in using Earth observation in all stages of disaster management. The conference should provide guidelines to address important questions such as:

- What are the gaps that Earth observation can cover?
- Earth Observation improves decision-making for disaster risk management. Can this be done better and/or integrating space technologies beyond EO
- Are the existing mechanisms sufficient to ensure that information is delivered to first responders when they need it most?
- What are the opportunities for enhanced collaboration between public and private Earth observation providers?
- How can space-based technologies empower the communities to prepare for disasters?

The conference aims to produce an outcome document to act as guidelines for Member States to integrate Earth observation and geospatial technologies in implementing the Sendai Framework for Disaster Risk Reduction: 2015-2030.



Overview

	Monday 14 September 2015	Tuesday 15 September 2015	Wednesday 16 September 2015
Morning	<p>08:30 Registration 09:00-10:00 Opening Session and group photo 10:00-12:30 Key note speeches ISDR, UNOOSA, Bangladesh, China, UN-SPIDER</p>	<p>09:00-10:30 Session 3 (Led by panellists) Foster public and private collaboration</p> <p>11:00-12:30 Session 4 (Led by panellists) Empowering the communities to prepare for disasters</p>	<p>09:00-10:30 Theme Session 5 (Led by panellists) Engaging with UNOOSA/UN-SPIDER in the streamlining of EO in decision-making for DRR and sustainable development 11:00-12:00 Concluding session 12:00-12:30 Closing</p>
Lunch	12:30-14:00 Fusion Court Cafe, 1st floor	12:30-14:00 Fusion Court Cafe, 1st floor	12:30-14:00 Fusion Court Cafe, 1st floor
Afternoon	<p>14:00-15:30 Session 1 (Led by panellists) Earth observation in understanding disaster risk (reference to Priority 1 of the Sendai Framework for DRR) 16:00-17:30 Session 2 (Led by panellist) Earth observation in enhancing preparedness for effective response (reference to Priority 4 of the Sendai Framework for DRR)</p>	<p>14:00-16:30 Working Groups</p> <ol style="list-style-type: none"> 1. Drought – How UN-SPIDER network can support? 2. Lesson Learned from Nepal Earthquake – Earth observation perspective 3. Capacity building and emerging technologies <p>16:30 Report: Working group outcomes</p>	<p>Institutional visit</p> <p>Group 1: National Disaster Reduction Centre of China</p> <p>Group 2: Yungang Satellite Earth Station</p>
Evening	18:00 Icebreaker by the Ministry of Civil Affairs, P.R.C		



Day 1 (14 September 2015):

Opening Session (Venue: Grand Ballroom, 3rd floor)

Time	Activity	Country/Organisation	Speaker
08:30-09:30	Registration		
09:00-09:35	Opening Ceremony <ul style="list-style-type: none"> Mr. Gu Chaoxi, Vice Minister of Civil Affairs, P.R. China Ms. Simonetta Di Pippo, Director, UN Office for Outer Space Affairs Mr. Ma Xinmin, DDG, Department of Treaty and Law, Ministry of Foreign Affairs, P. R. China Mr. Li Guoping, DG, Department of Systems Engineering, China National Space Administration Mr. Li Xinjun, DDG, Asia Pacific Space Cooperation Organisation 		
09:35-10:00	Group photo & Coffee break		
10:00-12:30	Key note presentations	Organisation	Chair: Dr. Yang Siqun
10:00-10:30	Implementation of Sendai Framework for Disaster Risk Reduction: 2015-2030	Programme Officer, UNISDR ¹	Sujit Mohanty
10:30-11:00	The Office for Outer Space Affairs bringing space-based tools and applications at the heart of the post-2015 development agendas	Director, UN Office for Outer Space Affairs (UNOOSA)	Ms Simonetta Di Pippo
11:00-11:30	Bangladesh Towards Resilience: The use of space technology	Minister, Ministry of Disaster Management and Relief, Bangladesh	Mofazzal Hossain Chowdhury (Maya)
11:30-12:00	Research on Chinese Natural Disaster Reduction System of Systems (CNDRSS)	Academician, Wuhan University	Li Deren
12:00-12:30	Earth observation in implementing Sendai Framework for Disaster Risk Reduction: 2015-2030	Head, UN-SPIDER Beijing Office, UNOOSA	Shirish Ravan
12:30-14:00	Lunch (Venue: Fusion Court Cafe, 1st floor)		

¹ UNISDR – United Nations International Strategy for Disaster Reduction



Day 1 (14 September 2015):

Post-lunch Session (Venue: Grand Ballroom, 3rd floor)

Time	Activity	Country/Organisation	Speaker
14:00-15:30	Session 1: Earth observation in understanding disaster risk (reference to Priority 1 of the Sendai Framework for DRR) Chair: Sujit Mohanty		
14:00-14:10	1. Understanding disaster risk : The foundation for disaster risk reduction and resilience	UNISDR	Sujit Mohanty
14:10-14:20	2. Utilizing satellite-based information for disaster risk assessment: Why and how?	Asian Disaster Preparedness Centre	Peeranan Towashiraporn
14:20-14:30	3. ESCAP's efforts in use of space-derived data and products for disaster risk reduction	UNESCAP ²	Wang Keran
14:30-14:40	4. Innovative information Platform for Disaster Response and Recovery - an experience of Nepal Earthquake 2015	ICIMOD ³	Basanta Shreshtha
14:40-14:50	5. Theory and practice of annual natural disaster risk assessment	NDRCC ⁴	Pan Donghua
14:50-15:30	Questions and comments from the audience		
15:30-16:00	Coffee break		
16:00-17:30	Session 2: Earth observation in enhancing preparedness for effective response (reference to Priority 4 of the Sendai Framework for DRR) Chair: Eriksen Mafra, Co-chair: Khaled Mashfiq		
16:00-16:10	6. GF satellites and its application for emergency response	NDRCC	Fan Yida
16:10-16:20	7. Geology Hazard Monitoring and Risk Assessment	Ministry of Land and Resource, China	Tong Liqiang
16:20-16:30	8. Brazilian Civil Defense: Challenges for effective responses during emergencies	Civil Defense, Brazil	Eriksen Mafra
16:30-16:40	9. Earth Observation for Disaster Response: Building capacities and providing solutions in the Asia Pacific Region	UNITAR ⁵ /UNOSAT	Khaled Mashfiq
16:40-16:50	10. Emergency response for search and rescue of Nepal earthquake (from the report of CISAR and UNOCHA)	China Earthquake Administration	Qu Guosheng
16:50-17:30	Questions and comments from the audience		
18:00-19:00	Icebreaker hosted by Ministry of Civil Affairs, People's Republic of China		

² UNESCAP – United Nations Economic and Social Commission for Asia and the Pacific

³ ICIMOD – International Centre for Integrated Mountain Development

⁴ NDRCC - National Disaster Reduction Centre of China

⁵ UNITAR - United Nations Institute for Training & Research



Day 2 (15 September 2015):

Pre-lunch session (Venue: Grand Ballroom, 3rd floor)

Time	Activity	Country/Organisation	Expert
09:00-10:30	Session 3: Foster public and private collaboration Chair: Milind Pimprikar		
09:00-09:10	11. Lesson learned from social force to participate in disaster relief	Beijing Normal University	Zhang Qiang
09:10-09:20	12. GlobalSat for DRR: A new global platform to fulfill sustainable development commitments in the post-2015 framework	CANEUS International, Canada	Milind Pimprikar
09:20-09:30	13. Seeing a Better World through public and private collaboration - A DigitalGlobe perspective	DigitalGlobe	Jon Song
09:30-09:40	14. The importance of spatial data and the use of geoportal in disaster management: Challenges and way forward for public-private partnership in SFDRR implementation	National Committee For Disaster Management, Royal Government of Cambodia	Ross Sovann
09:40-09:50	15. PPP and DRR: Monitoring of Kyagar glacial lake in China	Swiss Embassy in Beijing	Marc-André Bünzli
09:50-10:30	Questions and comments from the audience		
10:30-11:00	Coffee break		
11:00-12:30	Session 4: Empowering the communities to prepare for disasters Chair: Peeranan Towashiraporn		
11:00-11:10	16. Build back better to empower communities and reduce disaster risk: Case studies from UNICEF China	UNICEF ⁶	Du Yuan
11:10-11:20	17. Experience of the CFPA for Nepal earthquake relief	China Foundation for Poverty Alleviation (CFPA)	Zhu Yicun
11:20-11:30	18. Alternative technologies in educating enhanced community participation in earthquake disaster risk reduction	Girls' Polytechnic, Assam State Council for Technical Education, India	Ms. Papori Barooah
11:30-11:40	19. Making the invisible visible through community engagement	Kathmandu Living Labs	Nama Budhathoki,
11:40-11:50	20. Social mobilization and service for disaster reduction	NDRCC	Yang Siqian
11:50-12:30	Questions and comments from the audience		
12:30-14:00	Lunch (Venue: Fusion Court Cafe, 1st floor)		

⁶ UNICEF - The United Nations Children's Fund



Post-lunch session (Venue: Grand Ballroom and Hibiscus Room 3rd floor)

14:00-17:30	Working Groups	Panel	Venue
14:00-17:00	Working Group 1: Drought – How UN-SPIDER network can support? Chair: Amna Hamid, Remote Sensing Authority, Sudan	UNESCAP, BNU ⁷ , RSA ⁸ , ICDRR ⁹ , India, Iran, MoA, Vietnam	Hibiscus Room 3 rd Floor
	Working Group 2: Lesson Learned from Nepal Earthquake – Earth observation perspective Chair: Anil Kumar Thakur, Additional Secretary, Ministry of Home Affairs, Nepal	Nepal, ICIMOD, Copernicus, DigitalGlobe, , NDRCC, UNITAR/UNOSAT	Grand ballroom (part1)
	Working Group 3: Capacity building and emerging technologies Chair: Weng Jingnong, RCSSTEAP	CSSTEAP ¹⁰ , RCSSTEAP ¹¹ , UN- SPIDER, NDRCC, Beidou	Grand ballroom (part2)
17:00-17:30	Outcomes of working groups		Grand ballroom (part1)

Detailed concept note for each working group is attached at the end of agenda.

⁷ BNU – Beijing Normal University, China

⁸ RSA – Remote Sensing Authority, Sudan

⁹ ICDRR - International Center for Drought Risk Reduction, China (based at NDRCC)

¹⁰ CSSTAP – UN Affiliated Centre for Space Science Technology Education for Asia and the Pacific, India

¹¹ RCSSTEAP - UN Affiliated Centre for Space Science Technology Education for Asia and the Pacific, China



Day 3 (16 September 2015):

Pre-lunch session and Closing ceremony (Venue: Grand Ballroom, 3rd floor)

Time	Activity	Country/Organisation
09:00-10:30	Session 5: Engaging with UNOOSA/UN-SPIDER in the streamlining of EO in decision-making for DRR and sustainable development <i>(Lightening talks of 5 minutes each)</i> Chair: Shirish Ravan	
	21. Regional Support Offices: ICIMOD, SUPARCO ¹² (Pakistan), LAPAN ¹³ (Indonesia), Iranian Space Agency	Basanta Shreshtha, Muhammad Farooq, Parvati Sofan, Abdolreza Ansari
	22. Countries working with UN-SPIDER: Bangladesh, Vietnam, Sudan, Bhutan, Lao PDR and Mozambique	Netai Serkar, Quang Huy Bui, Amna Hamid, Jigme Chogyal, Silap Boupha, Igor Honwana
	23. Prospective countries to work with UN-SPIDER: Cambodia and Nepal	Sovann Ross, Anil Kumar Thakur
	24. UNOOSA Regional Centre for Space Science Technology Education: China and India	Weng Jingnong and Sarnam Singh
	Discussions	
10:30-11:00	Coffee break	
11:00-12:00	Concluding session	Panel: Shirish Ravan and Chair of all sessions
12:00-12:30	Closing session	NDRCC, UNOOSA, a representative from participants and Minister of Disaster and Relief, Bangladesh
12:30-14:00	Lunch (Venue: Fusion Court Cafe, 1st floor)	
14:00-18:00	Institutional visit	<ul style="list-style-type: none"> • Group 1: National Disaster Reduction Centre of China • Group 2: Yungang Satellite Earth Station

¹² SUPARCO - Space and Upper Atmosphere Research Commission, Pakistan

¹³ LAPAN - National Institute of Aeronautics and Space, Indonesia

Session 1 Framework

Earth observation in understanding disaster risk (reference to Priority 1 of the Sendai Framework for DRR)

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1.0 OVERVIEW

One of the lessons learned from the Hyogo Framework for Action is: ‘Reducing disaster risk is a cost effective investment in preventing disasters’. The Sendai Framework for Disaster Risk Reduction: 2015-2030 (**SFDRR**) has further built upon this lesson learned, which is mentioned in the Priority 1 of SFDRR: Understanding disaster risk. This session will discuss various means to be adapted by Member States and supporting international/regional organizations in understanding disaster risk, especially based on the use of Earth observation technologies. This may include tools, technologies as well as peripheral issues such as data sharing, spatial data infrastructure, institutional coordination, etc. Recommended practices and experiences in this context will be shared by the panelists and discussed by all participants.

2.0 RATIONALE

Priority 1 of SFDRR (Understanding disaster risk) is further explained in its paragraph 23:

23. Policies and practices for disaster risk management should be based on an understanding of disaster risk in all its dimensions of vulnerability, capacity, exposure of persons and assets, hazard characteristics and the environment. Such knowledge can be leveraged for the purpose of pre-disaster risk assessment, for prevention and mitigation and for the development and implementation of appropriate preparedness and effective response to disasters.

The SFDRR, in its paragraphs 24f and 25c, recommends: (a) to promote real-time access to reliable data, make use of space and in situ information, including geographic information systems (GIS), and use information and communications technology innovations to enhance measurement tools and the collection, analysis and dissemination of data, and (b) to promote and enhance, through international cooperation, including technology transfer, access to and the sharing and use of non-sensitive data, information, as appropriate, communications and geospatial and space-based technologies and related services.

Earth observation, including the data from space based information and unmanned aerial vehicles (UAV), is increasingly available and provide unique information to understand disaster risks. The microwave remote sensing capabilities are able to monitor natural hazards day and night and virtually under all weather conditions. High resolution satellites are able to provide images as aerial photographs which can be used to map the finest details on the Earth. Digital elevation models, which are one of the most important inputs for flood risk and geological hazard analysis, are increasingly available from space platforms. Location based

information can be integrated through multiple platforms such as GIS and smart phones, which can deliver data and information to decision makers and to local people and vice versa.

Although technology is capable of providing precise information in understanding disaster risk, the challenges are manifold. To list a few: capacity of disaster management agencies to use Earth observation data in identifying risks, policy level shortfalls related to data sharing, data interoperability and national spatial data infrastructure, and access to satellite images and derived information. To make successful use of Earth observation data in understanding disaster risk calls for greater awareness among the decision makers on how Earth observation data would contribute to achieve this priority at national, local as well as global level.

3.0 OBJECTIVE

The Session is structured with following objectives:

- Demonstrate operational programmes, systems and tools that use Earth observation to understand disaster risk
- Outline the policy and coordination issues in collecting, managing, analyzing and using advanced Earth observation data to understand disaster risk
- Articulate focused discussions addressing the major issues that limit the use of Earth observation to understand disaster risk

4.0 EXPECTED OUTCOME:

This session will first review the international initiatives and experiences and identify opportunities for cooperation and cater the challenges to ensure the countries use Earth observation to understand disaster risk.

5.0 AGENDA

The Session is dedicated to the overarching theme to explore the full potential of Earth observation technologies for disaster management and implementing the SFDRR by providing valuable inputs to use Earth observation to understand disaster risk.

1. Panelists

1. Sujit Mohanty, UNISDR
2. Peeranan Towashiraporn, Asian Disaster Preparedness Centre
3. Wang Keran, UNESCAP
4. Basanta Shreshtha, ICIMOD
5. Pan Donghua, NDRCC

2. Wrap up: Q&A, Closing Remarks by Session Chair

6.0 SUPPORTING MATERIALS:

1. Post 2015: Space-based information for disaster risk reduction (http://www.un-spider.org/sites/default/files/March2015_Newsletter_DRR_online.pdf)
2. The importance of space-based information in the 2015 Sendai Framework for Disaster Risk Reduction (http://www.un-spider.org/sites/default/files/NewsletterPost2015_online.pdf)

Session 2 Framework

Earth observation in enhancing preparedness for effective response (reference to Priority 4 of the Sendai Framework for DRR)

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1.0 OVERVIEW

UN-SPIDER has discussed this topic for the ASEAN region through workshops on ‘Development of guidelines and SOPs for acquisition and utilisation of space-based information during emergency response’ and also contributing to the International Working Group on Satellite Emergency Mapping (IWG-SEM). The session will focus on the lessons learnt from these initiatives and experiences from mega-disasters such as the recent earthquake in Nepal. The session intends to provide guidance on how to prepare for effective use of Earth observation for efficient response by addressing issues such as prerequisite of data, data access, skills and capacity, emergency mapping products and product dissemination. This session will also discuss the methods and present case studies demonstrating the use of space-based information for disaster damage and loss assessment and discuss ways to standardize the role of Earth Observation beyond emergency mapping, providing valuable information in damage and loss assessments.

2.0 RATIONALE

Priority 4 of SFDRR (Enhancing disaster preparedness for effective response and to “Build Back Better” in recovery, rehabilitation and reconstruction) is further explained in its paragraph 32:

32. The steady growth of disaster risk, including the increase of people and assets exposure, combined with the lessons learned from past disasters, indicates the need to further strengthen disaster preparedness for response, take action in anticipation of events, integrate disaster risk reduction in response preparedness and that ensure capacities are in place for effective response and recovery at all levels.

Furthermore, the Sendai Framework for Disaster risk Reduction 2015-2030 in its paragraphs 24f and 25c recommends: (a) to promote real-time access to reliable data, make use of space and in situ information, including geographic information systems (GIS), and use information and communications technology innovations to enhance measurement tools and the collection, analysis and dissemination of data, and (b) to promote and enhance, through international cooperation, including technology transfer, access to and the sharing and use of non-sensitive data, information, as appropriate, communications and geospatial and space-based technologies and related services.

Assessing the current status and needs for an effective use of Earth observation and geospatial information during emergency response is of critical importance to ensure that countries prepare to handle the challenges posed by the increasing frequency of disasters. A first step to address these challenges is to review current

state of capacity, data availability, data sharing policies and institutional coordination, especially related to emergency response. The session will discuss how countries can leverage the existing opportunities to address above challenges and enable countries. The sole purpose of this session is to identify important interventions for effective use of space-based information in decision making during emergencies to save lives and reduce economic losses.

3.0 OBJECTIVE

1. Enhancing preparedness for effective emergency response by identifying gaps, capacity-building needs, database needs, financial needs, mapping procedures, institutional coordination, etc.
2. Preparing to respond to major disasters by taking effective advantage of international mechanisms (International Charter, Sentinel Asia, Copernicus etc.) that provide space-based information during emergencies
3. Outline the framework that prepares countries to use Earth observation to respond to disasters on routine basis

4.0 EXPECTED OUTCOME:

This session will review how countries can prepare to use international initiatives during major disasters and will provide important guidelines on enabling countries to use Earth observation on routine basis to respond to disasters that cannot be supported by international mechanisms.

5.0 AGENDA

The Session is dedicated to the overarching theme to explore the full potential of Earth observation technologies in enhancing preparedness for an effective disaster response.

1. Panelists:
 1. Fan Yida, NDRCC
 2. Tong Liqiang, Ministry of Land and Resource, China
 3. James Hagen, Saint Xavier University, USA
 4. Eriksen Mafra, Civil Defense, Brazil
 5. Khaled Mashfiq, UNITAR/UNOSAT
 6. Qu Guosheng, China Earthquake Administration
2. Wrap up: Q&A, Closing Remarks by Session Chair

6.0 SUPPORTING MATERIALS:

1. Earth Observation for Disaster Response (<http://www.un-spider.org/news-and-events/newsletter/un-spider-newsletter-213-earth-observation-disaster-response>)
2. <https://www.disasterscharter.org>
3. <http://www.copernicus.eu/>

Session 3 Framework

Foster Public and Private Collaboration – PPP

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1.0 OVERVIEW

Many private and public enterprises and NGO's offer advanced Earth observation satellites products and tools thereby adding value to the original data from satellite images or how they are distributed, accessed and analyzed. Furthermore, the public sector is now often partnering with the private sector in developing space assets for disaster management capabilities.

In order to explore the full potential of Earth observation technologies for disaster management and implementing the Sendai Framework for DRR, there is an immense need to further foster these public and private partnerships (PPP).

The session will discuss the opportunities offered through public and private collaboration and it will provide insights on advanced Earth observation satellites, online platforms to access satellite data archives and near real time data, investments needed to work with private companies to get assured access to satellite images during emergencies and ways to develop partnerships.

This workshop invites global professionals working in the area of Public Private Partnerships for Disaster risk reduction, to share experiences and identify the challenges for PPP collaboration models, and innovative ways to strengthen PPPs and nurture ongoing partnerships.

2.0 RATIONALE

The UN General Assembly resolution 68/211 of December 2014 decided on the objectives of the Third World Conference on DRR, one of them "to adopt a post-2015 framework for disaster risk reduction" and another "to identify modalities of cooperation and commitments to implement a post-2015 framework for disaster risk reduction".

Furthermore, the Sendai Framework for Disaster risk Reduction 2015-2030 in its paragraphs 24f and 25c recommends: (a) to promote real-time access to reliable data, make use of space and in situ information, including geographic information systems (GIS), and use information and communications technology innovations to enhance measurement tools and the collection, analysis and dissemination of data, and (b) to promote and enhance, through international cooperation, including technology transfer, access to and the

sharing and use of non-sensitive data, information, as appropriate, communications and geospatial and space-based technologies and related services.

A side event, CANEUS workshop, held in Sendai brought together key stakeholders such as UNOOSA, UNDP, UN-ISDR, World Bank, and public/private/academic satellite technology developers to analyze the needs and annotate PPP solutions for a new global framework for sharing of space technology and data standards to serve nations' disaster management needs.

The outcome is intended to serve as the basic framework to establish a public/private partnership to create common data and access standards across communities with low barriers of entry for participating nations – **affordable**, continue operations over many years to achieve resilience – **sustainable**, high refresh-rate to continually improve data gathering capabilities based on lessons learned – **adaptable**, and expansion to sustain growing need and achieve global coverage – **scalable**.

Additionally, several ongoing initiatives such as **Copernicus**, the European Union's contribution to the Global Earth Observation System of Systems (GEOSS) delivering geospatial information globally are moving towards an operational phase in 2015. The precise roles of public and private actors will vary according to Copernicus service, Copernicus governance and business model structure.

Recently, the EARSC – European Association of Remote Sensing Companies, a trade association representing 78 members from 22 countries in the EU and beyond, have proposed a PPP roadmap leveraging Investments in Copernicus.

DigitalGlobe has become the leading data supplier backed by new US legislation liberalizing sales of high resolution imagery down to 25cm. The DMC Consortium constellation coordinated through DMCii - Airbus provides seamless commercial Earth imaging services whilst each satellite is independently owned and controlled by a separate nation/operator. Skybox (Google), PlanetLabs and others are new players offering high resolution imagery through low cost business models.

Furthermore, the Helix Nebula ecosystem provides a multi-tenant 'Open Market Place for Science', where data providers, scientists, funding bodies, Small and medium-sized enterprises (SMEs) and downstream industry can meet to work along common interests to use HN for a seamless integration of science output into a business environment, ensuring a constant innovation push coming from the Earth science domain.

The World Bank considers the concept of "Open Sources and Open Data" as an important component to empower all end users and all contributors along the value chain to provide their contribution and help resolving data related issues. There is a need to create global partnership under the UN to coordinate and organize all the disparate efforts – especially one that ensures the availability of these capabilities to otherwise underserved countries.

3.0 OBJECTIVE

The **PPP** Session is structured with following objectives:

- Provide participants and potential stakeholders with an assessment of advanced Earth observation satellite online platforms to access satellite data archives and near real time data, current related international initiatives, and lessons learned;
- Articulate focused discussions addressing the major issues covering investments needed to work with private companies to get assured access to satellite images during emergencies and ways to develop partnerships through public and private collaboration; and



- Create a strategy for implementing the Sendai Framework for DRR to incentivize “near real-time availability, interoperability across communities, ease of data post-processing and interpretation, data delivery, and foster global cooperation through public-private partnership”.

4.0 EXPECTED OUTCOME:

This session will first review the international experiences and PPP engagement models to help identify the challenges and opportunities for strengthening PPPs and innovative ways to nurture ongoing partnership.

5.0 AGENDA

The Session is dedicated to the overarching theme to explore the full potential of Earth observation technologies for disaster management and implementing the Sendai Framework for DRR by fostering public and private partnerships.

1. Panelist

1. Zhang Qiang, Beijing Normal University
2. Milind Pimprikar, CANEUS International, Canada
3. Jon Song, DigitalGlobe
4. Ross Sovann, National Committee For Disaster Management, Royal Government of Cambodia
5. Marc-André Bünzli, Swiss Embassy in Beijing

2. Wrap up: Q&A, Closing Remarks by Session Chair

6.0 SUPPORTING MATERIALS:

- Post 2015: Space-based information for disaster risk reduction (http://www.un-spider.org/sites/default/files/March2015_Newsletter_DRR_online.pdf)
- The importance of space-based information in the 2015 Sendai Framework for Disaster Risk Reduction (http://www.un-spider.org/sites/default/files/NewsletterPost2015_online.pdf)

Session 4 Framework

Empowering the communities to prepare for disasters – Earth observation perspective

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1.0 OVERVIEW

In 2014, UN-SPIDER carried out the event entitled “Geospatially enabling community collaboration” in Vietnam to involve a large number of stakeholder organizations in using geospatial technologies for disaster management. This topic needs further attention as the role of community in contributing to disaster risk reduction information is vital. This session will discuss the tools, technologies, methods and present case studies demonstrating how communities and the general public can make use of space-based information for building disaster resilience. The session intends to discuss ideas on how to involve communities to identify risks during normal situations, provide early warning prior to disaster and assess disaster damage and loss during disasters.

2.0 RATIONALE

Resilience is defined as: “The ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions”, United Nations Office for Disaster Risk Reduction (UNISDR), “2009 UNISDR Terminology on Disaster Risk Reduction”, Geneva, May 2009 (<http://www.unisdr.org/we/inform/terminology>).

The SFDRR in its paragraph 24(m) recommends to promote national strategies to strengthen public education and awareness in disaster risk reduction, including disaster risk information and knowledge, through campaigns, social media and **community mobilization**, taking into account specific audiences and their needs;

Furthermore, in its paragraphs 24f and 25c it recommends: (a) to promote real-time access to reliable data, make use of space and in situ information, including geographic information systems (GIS), and use information and communications technology innovations to enhance measurement tools and the collection, analysis and dissemination of data, and (b) to promote and enhance, through international cooperation, including technology transfer, access to and the sharing and use of non-sensitive data, information, as appropriate, communications and geospatial and space-based technologies and related services.

The International Network of Crisis Mappers (Crisis Mappers Net) is an international community of experts, practitioners, policymakers, technologists, researchers, journalists, scholars, hackers and skilled volunteers engaged at the intersection of humanitarian crises, new technology, crowd-sourcing, and crisis mapping. Platforms such as Ushahidi, OpenStreetMap and Google are providing collaborative and social crowdsourced

mapping tools allowing communities to contribute. In addition, DigitalGlobe Tomnod platform provides communities access to high resolution images to assess damages during the disaster.

With increasing awareness of computer based tools such as Google maps and wide use of smartphones, communities have a great potential to contribute in building resilience by identifying risks during normal situations, providing early warning prior to disaster and assess damage and loss during and after disasters.

3.0 OBJECTIVE

This Session is structured along the following objectives:

- To provide participants and stakeholders with successful cases where power of community was leveraged through crowdsourced mapping;
- To articulate focused discussions addressing the major issues for making community based tools more effective; and
- To provide guidelines on how to involve communities to identify risks during normal situations, provide early warning and help in building resilience

4.0 EXPECTED OUTCOME:

This session will show how various platforms, existing tools and technologies are leveraging the power of communities and provide valuable inputs to build programmes to enhance involvement community to use Earth observation data to build resilience.

5.0 AGENDA

The Session is dedicated to the overarching theme to explore the full potential of Earth observation technologies for disaster management and implementing the Sendai Framework for DRR by engaging and empowering communities. To this end, the sub-themes include:

1. Panelists

1. Du Yuan, UNICEF
2. Zhu Yicun, China Foundation for Poverty Alleviation (CFPA)
3. Ms. Papor Barooah, Girls' Polytechnic, Assam State Council for Technical Education, India
4. Nama Budhathoki, Kathmandu Living Labs
5. Yang Siqian, NDRCC

2. Wrap up: Q&A, Closing Remarks by Session Chair

Working Group 1:

Drought - How UN-SPIDER network can support

Time: 15th September 2015 (14:00 – 17:30)

Venue: Hibiscus Room 3rd Floor

Background:

Drought, which is called as a silent killer, is one of major natural disasters that have serious impacts on human societies and the environment, especially in the developing countries. Along with climate change, droughts have become more frequent and severe worldwide over the past few decades. Since drought is a slow process and it impacts the wider region, an early monitoring and warning of drought is needed for reducing its impact. Space-based technology, which can provide frequent and extensive observations, it has played an important role in drought monitoring. However, access to data and capacity to develop space technology based monitoring tools are major challenges in the developing countries that are drought-prone.

Objective:

UN-SPIDER is a platform that facilitates access to and use of space-based information to support disaster management activities. In order to improve the drought management ability in developing countries, the working group promotes dialog on methods of drought monitoring and services offered through UN-SPIDER Network (Regional Support Offices and other support organizations) will be discussed. It working group aims to develop cooperation for accessing space-based information and products related to drought monitoring and enhance capacity and share experiences/best practices. The following key points will be addressed:

1. Data and product service: Where and how to get timely and free access to space-based data/products on regular basis for drought monitoring.
2. Capacity building: How to strength institutional capacity at national level to use space-based information for drought monitoring.
3. Sharing experiences: Sharing experiences to enhance international cooperation in drought monitoring.
4. Gaps and Challenges
5. Suggestions

Panelists: Nepal, India, ICIMOD, Copernicus, DigitalGlobe, ICDRR, NDRCC

Working Group 2:

Emergency Mapping

Lesson Learned from Nepal Earthquake (25 April, 2015) – Earth observation for emergency Response and Recovery

Time: 15th September 2015 (14:00 – 17:30)

Venue: Grand Ballroom (part 1)

Objectives

Earth observation information remains a key element in disaster management because near real-time monitoring from space of natural hazards provides us with reliable and actionable information to the decision makers, responders and community. Such information must be transferred to the end-user friendly and understandable manner and should provide the critical inputs for important decisions related to disaster response and recovery. Successful response starts with a map. Space based technologies (earth observation data, satellite navigation and satellite communication), geospatial information and tools have a lot to contribute to the maps that help emergency response and assess damage and loss. This working group would take the recent Nepal earthquake as case to explore how the Earth observation technology and geoinformation is used in developing countries, how it contributes to the support emergency response and its effectiveness in providing early information on damage and loss. The working group will also discuss the gaps and challenges that need to be addressed. After the discussion and analysis of the topic in depth, the group would provide key recommendations on the issues that are necessary to improve use of space-based information in emergency response. The following key points will be addressed:

1. Multi-stakeholder (government, technical supporting institutions, public and private) discussion on the Nepal Earthquake response and recovery focusing on utilization of Earth observation technology.
2. Access to earth observation data during emergency – issues such as availability of right type of data, timely availability, data download etc.
3. Step-wise approach for emergency mapping service to support disaster response and recovery.
4. Crowd sourcing technology to support Nepal earthquake response
5. The coordination and collaboration between stakeholders at national and international level
6. Data sharing and dissemination
7. Gaps and Challenges
8. Suggestions

Panelist: Nepal, India, ICIMOD, Copernicus, DigitalGlobe, ICDRR, NDRCC

Working Group 3:

Capacity building and emerging technologies

Time: 15th September 2015 (14:00—17:30)

Venue: Grand Ballroom (part 2)

Objectives:

The steady growth of disaster risk, including the increase of people and assets exposure, combined with the lessons learned from past disasters, indicates the need to further strengthen capacity of countries, such as disaster preparedness, plan action in anticipation of events, integrate disaster risk reduction in development planning, enhance preparedness for effective response, estimate damage and loss.

International cooperation is a key to successful implementation of the Sendai Framework for Disaster Risk Reduction: 2015-2030 (SFDRR) by supporting nations in various aspects to improve the capacity for risk reduction and emergency response. UNOOSA, with 17 partners, published the Global partnership in the World Conference on Disaster Risk Reduction (WCDRR) to advocate the integration of Earth Observation (EO) to support member states to address their DRR requirements. This working group will take opportunity to discuss how EO, especially UN Affiliated Regional Centres Centre for Space Science Technology Education for Asia and the Pacific, UN-SPIDER Regional Support Offices (RSO) and other partners work closely to provide valuable support in capacity building.

The SFDRR also addresses the importance of integrating emerging technology with existing operational disaster management system to improve disaster management. The integration of Global Navigation Satellite System (GNSS) with precise time, location and navigation services, integrated with remote sensing, geographic information systems and communications technology can strengthen the mechanism of reporting disaster information, commanding emergency rescue, rescue of trapped people etc. The emerging technologies need to be considered during the capacity building efforts to keep pace with the development of science and technology.

In this working group the following key points will be addressed:

1. Opportunities in UN Affiliated Regional Centres and UN-SPIDER network:
 - a. How to help countries to plan their long-term capacity building plans to take benefit of UN Affiliated Regional Centres
 - b. Emerging needs of the developing countries to utilize integrated EO technology for DRR
 - c. Tools and platforms to provide easy technology transfer to disaster management agencies for operational use
2. Emerging technologies like GNSS in disaster management:
 - a. Experience sharing with the GNSS application for early warning, information dissemination, and damage and loss assessment.
 - b. Demands of GNSS application for disaster management in Asia and the Pacific area.
 - c. How to integrate the GNSS with existing disaster management in Asia and the Pacific area.
3. Idea of launching Mass Open Online Course on 'EO for DRR' (MOOC)
 - a. EO for identifying risks, hazards and vulnerability
 - b. EO for emergency response
 - c. EO for damage and loss assessment
 - d. Disaster terminologies (hazard, disaster, risk, vulnerability etc.)
 - e. EO/Geospatial terminologies (remote sensing, GIS, GPS, satellites, sensors, image analysis, mapping, cloud sourcing, etc.)



Programme:

Time	Activity
14:00—15 :30	Capacity building opportunities 1. Activities of CSSTEAP with focus on DRR, Sarnam Singh 2. MicroCourse and MOOCs platform construction in RCSSTEAP, Weng Jingnong 3. UN-SPIDER, Ideas of MOOC on DRR, Shirish Ravan Open discussion based on the key issues listed above
15:30—16 :00	Coffee break
16:00—17 :00	GNSS for disaster management 4. UN-SPIDER, Shenrui Li 5. China Satellite Navigation Office Open discussion based on the key issues listed above
17:00—17 :30	Conclusion

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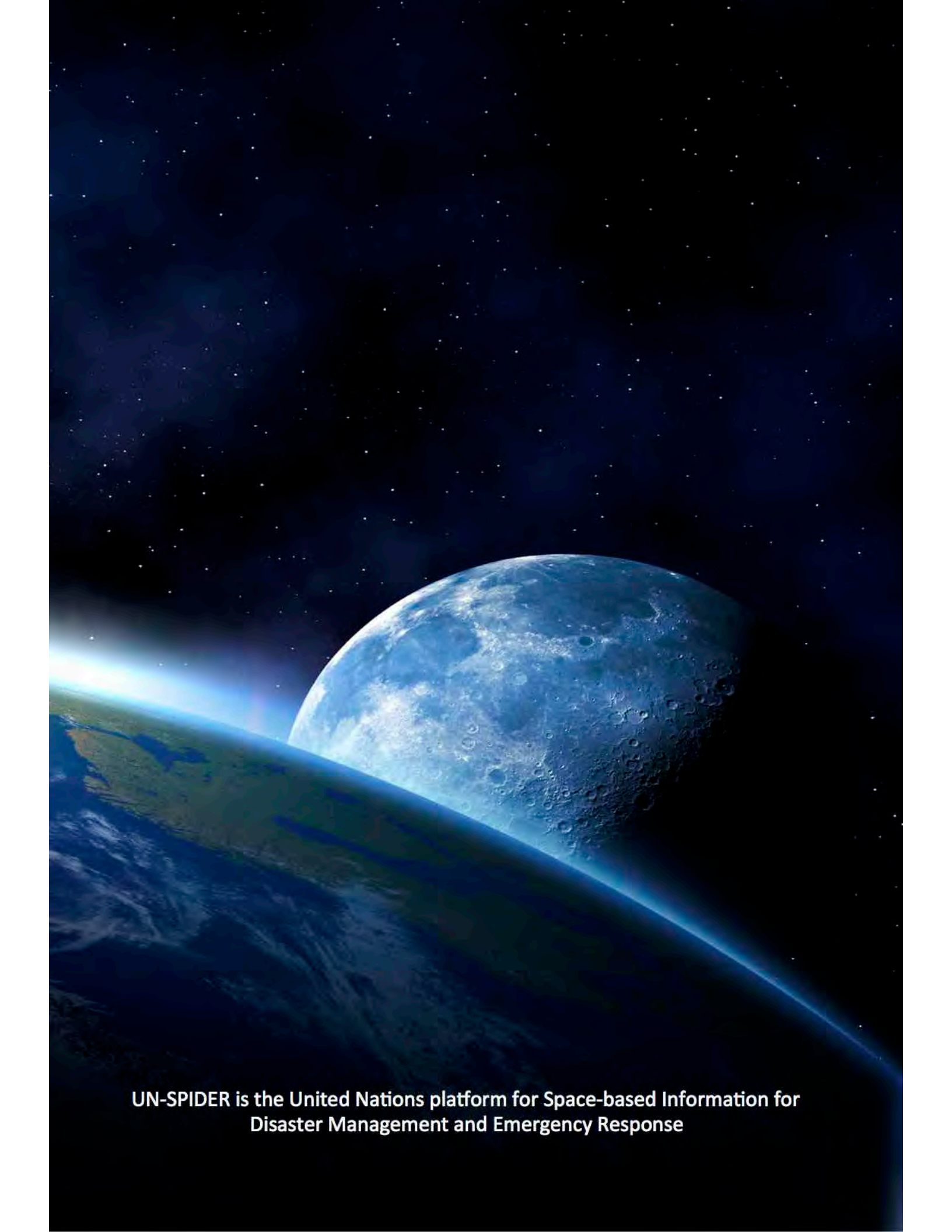
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Geographic representation of the participants for United Nations International Conference on Space-based Technologies for Disaster Management – “A consolidating role of the Sendai Framework for Disaster Risk Reduction: 2015-2030”

A composite image showing the Earth and the Moon in space. The Earth is in the foreground, showing a curved horizon with blue oceans and green landmasses. The Moon is in the background, showing its cratered surface. The sky is dark blue with many small white stars. A bright light source is visible on the left side, creating a lens flare effect.

**UN-SPIDER is the United Nations platform for Space-based Information for
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