UN-SPIDER Conference, Beijing, 14-16 September 2015

Earth observation in implementing Sendai Framework for Disaster Risk Reduction: 2015-2030

UN-SPIDER Efforts

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Uttarakhand Floods 2013

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Priorities for action - SFDRR

Priority 1

Understanding disaster risk

Priority 2

Strengthening disaster risk governance to manage disaster risk

Earth Observation

Priority 4

Enhancing disaster preparedness for effective response…

Priority 3

Investing in disaster risk reduction for resilience

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PRIORITY 1

National Level

*Promote real-time access to reliable data, make use of **space** and **in situ information**, including **geographic information systems (GIS)***

Global level

Maintain and strengthen in situ and remotely-sensed earth and climate observations.

*Strengthen the **evidence-base** in support of the implementation of this framework; promote scientific research of disaster risk patterns, causes and effects; disseminate risk information with the best use of **geospatial information technology***

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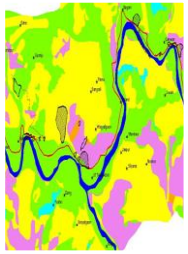
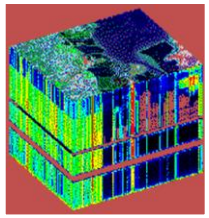
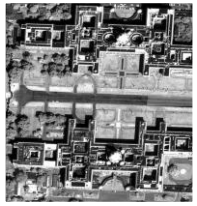
Earth Observation for disaster management



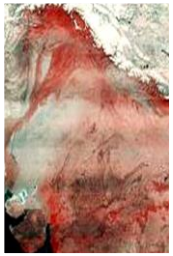
Spatially extensive mapping



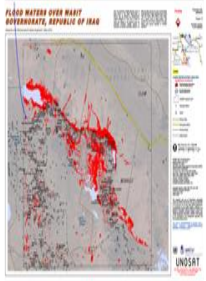
Beyond ‘human eye’ capability



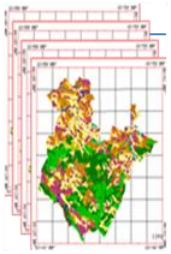
Localised event detection



Access difficult or dangerous sites



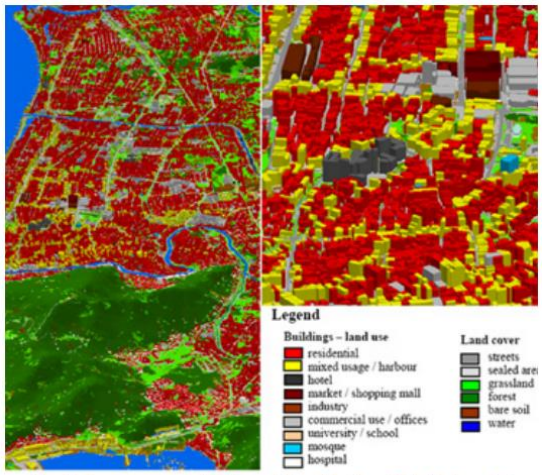
Near real time response



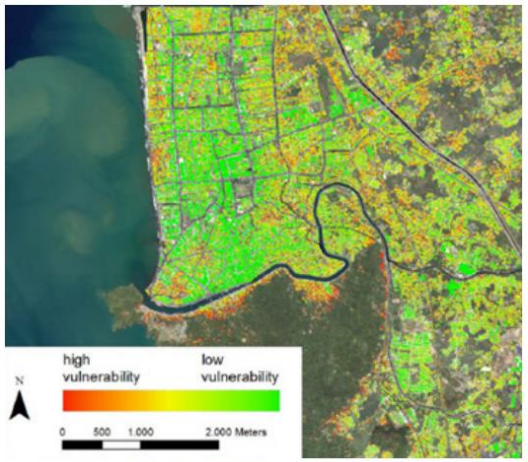
Geo-referenced and calibrated

PRIORITY 1

- Promote the collection, analysis, management and use of relevant data and practical information – *Earth observation provides critical inputs for*
  1. *exposure assessment*
  2. *vulnerability assessment*
  3. *hazard assessment and monitoring*



Physical exposure and 3-D model of Padang City (Indonesia) as derived from high resolution satellite data and a digital elevation model (Image DLR-DFD)



Area wide seismic building vulnerability assessment (high vulnerability in red to low vulnerability in green) using combined in-situ and satellite remote sensing-derived information for Padang City, Indonesia. (Image DLR-DFD)

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PRIORITY 1

- Periodically assess disaster risks, vulnerability, hazard characteristics – *Evidence based information from EO*
- Location-based disaster risk information, including risk maps – *Satellite Navigation technologies*

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Multi-hazard risk assessment

Earth Observation and GIS data

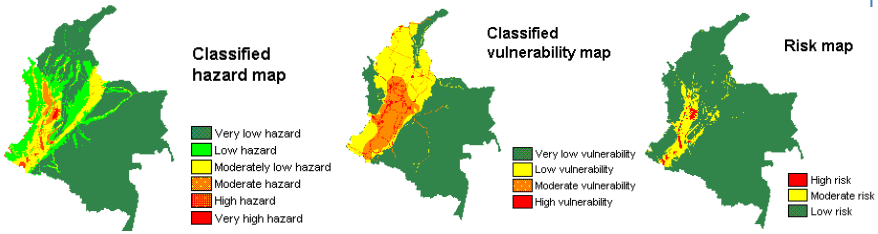
- Baseline maps
- Thematic maps on terrain and landuse
- Pre and Post disaster event maps

Other data

- Utility and infrastructure
- Amenities
- Socio-economic data
- Field data
- Disaster event data

Data models, analysis and visualization

Multi-hazard risk and vulnerability assessment



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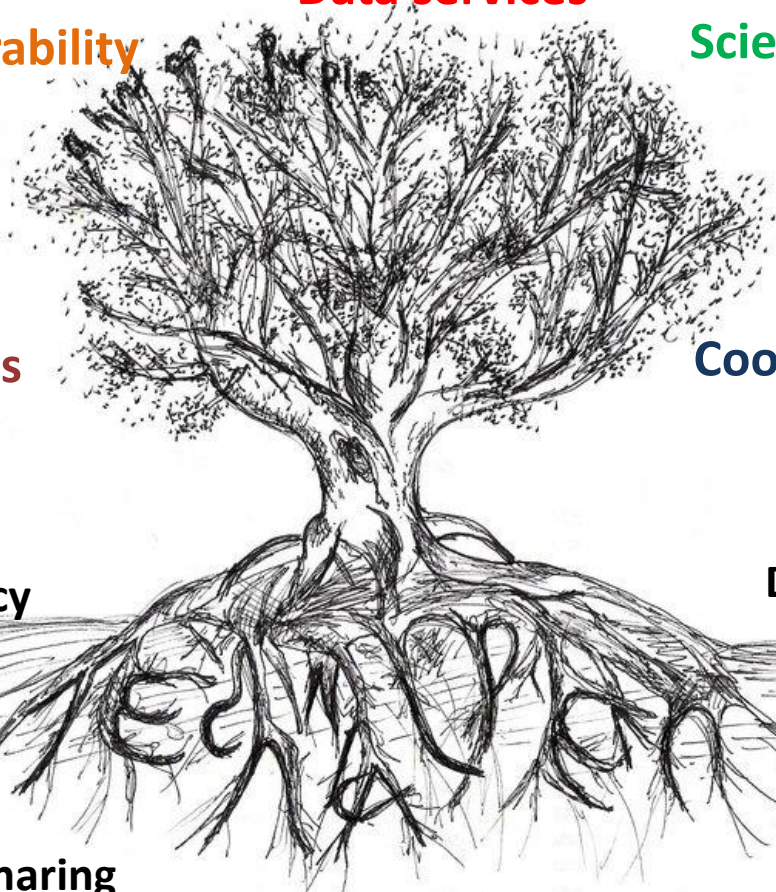
UN-SPIDER Technical Advisory Missions offer interventions at policy and coordination level



Data services

Data interoperability

Scientific solutions

Planning inputs

Data sharing

Products/Services

Meta data

Coordination

Data access

Remote sensing data policy

Disaster Management Law

Standing orders

Geospatial policy

Plans and strategies

Framework for Data sharing

Spatial Data Infrastructure

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Success story – Sri Lanka

- 2011 – UN-SPIDER **Technical Advisory Mission** strongly recommended **NSDI**
- 2012 & 2013 – Follow up and capacity building activities
- 2013 – **Sri Lanka Spatial Data Infrastructure** (SL SDI) approved by the Cabinet of Ministers
- 2014 – SL SDI Road map prepared
- NSDI components – Data, Data supply, Data Access & Applications, Governance, Legal and Policy

UN-SPIDER Technical Advisory Mission, Sri Lanka

17 – 21 October 2011

PRIORITY 1

- Promote and improve dialogue and cooperation among scientific and technological communities, other relevant stakeholders and policymakers

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Success story – Vietnam

- 2013 – UN-SPIDER Technical Advisory Mission
- 2014 – Follow up (Geospatially Enabling Communities Collaboration)
- 2015 –
  - Establishment of Geoinformatics Division
  - MoU between WRD - VAST – JAXA to benefit Disaster Management

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Priorities for action - SFDRR

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PRIORITY 2

- Establish and strengthen **government coordination forums** composed of relevant stakeholders at national and local levels
- It is necessary for such mechanisms to have a strong foundation in **national institutional frameworks** with clearly assigned responsibilities and authority to, inter alia, identify sectoral and multisectoral disaster risk, build awareness and knowledge of disaster risk through **sharing and dissemination of non-sensitive disaster risk information and data**

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Success Story - Bhutan

- 2014 – **UN-SPIDER Technical Advisory Mission**
- 2015 - Training workshop on **'Landslide hazard mapping, risk and vulnerability assessment'**

Establishment of Technical Working Group (TWG) on Landslide

- Keep know how of plans and programmes of all agencies related to landslides
- a platform to discuss issues such as availability of landslide hazards map, mapping needs, procedures, methodology, sharing of landslide hazard/risk/vulnerability maps, coordination for avoiding duplication
- The **TWG is one of the Working Groups under the inter-ministerial task force** formed as per the **Disaster Management Act 2013**.

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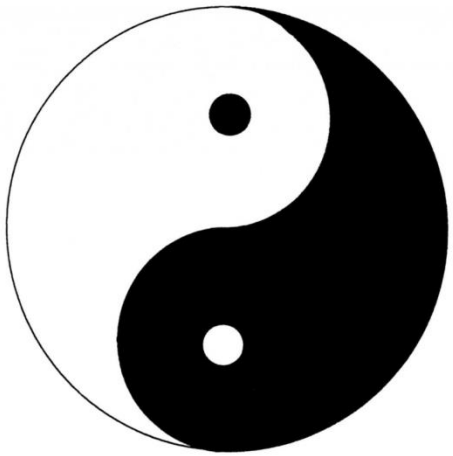
PRIORITY 3

- Strengthen the sustainable use and management of **ecosystems** and implement integrated environmental and natural resource management approaches that incorporate disaster risk reduction

Natural Heritage Sites in DRR



DRR to protect Natural Heritage Sites

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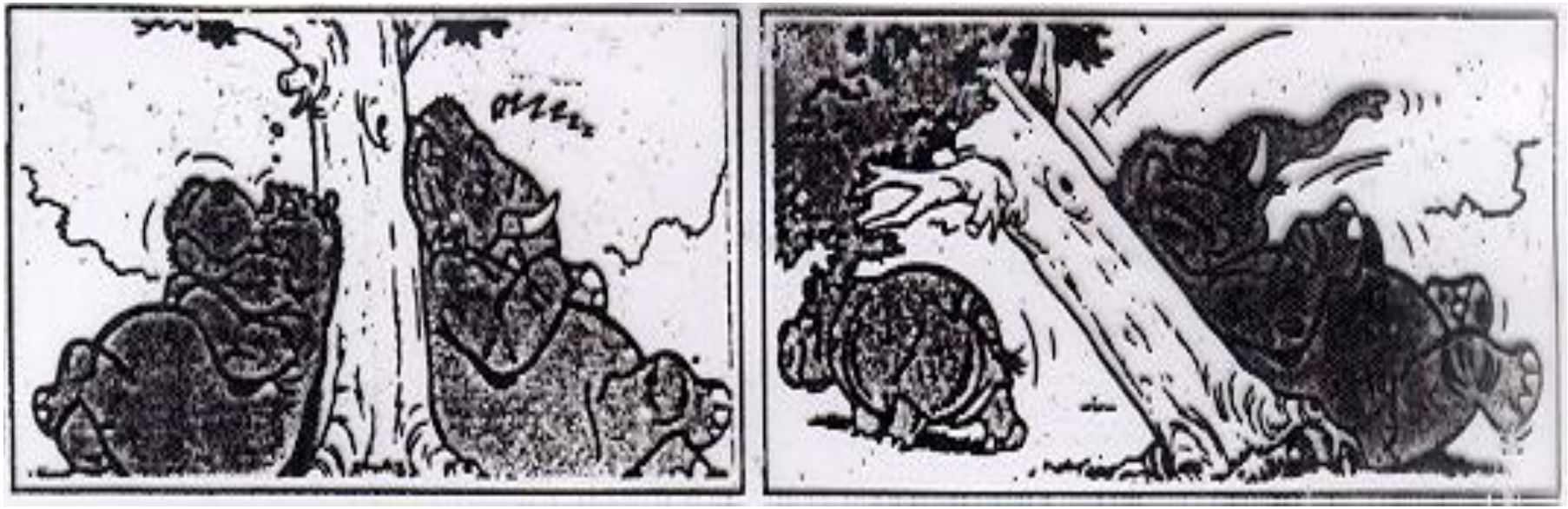

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Indicators of ecosystem health

- Extent
- Composition
- Biodiversity
- Biomass and NPP
- Disturbance
- Viable habitat

Actions

- Eco sensitive zoning
- Sustainable development
- Protected area development
- Forest fire mitigation plans
- Bioresource utilization

Earth Observation

Ecosystem based DRR (Eco-DRR) ⟷ **Ecosystem based Adaptation (EbA)**

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भारतीय वन्यजीव संस्थान
Wildlife Institute of India

International Workshop and Training on the Role of Natural World Heritage Sites in Disaster Risk Reduction

August 24-28, 2015

Organised by

UNESCO Category 2 Centre for World Natural Heritage Management & Training for Asia and the Pacific Region at Wildlife Institute of India, Dehradun

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PRIORITY 3

- Promote and support collaboration among relevant public and private stakeholders to enhance the resilience of business to disasters

  - *A session on PPP in this conference*
  - *Greater role of private industries in space arena*
  - *UNOOSA is working with partners like DigitalGlobe, ESRI , CANEUS International, GITA…*

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Preparing well in advance is in the nature !!!

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PRIORITY 4

- Develop and strengthen, as appropriate, coordinated regional approaches and operational mechanisms to prepare for and ensure rapid and effective disaster response in situations that exceed national coping capacities

International Charter Space & Major Disasters
Charte Internationale Espace et Catastrophes Majeures

SENTINEL ASIA

opernicus

Regional Support Offices

Partner Organisations
ESCAP, OCHA, UNITAR, UNDP…

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Regional level effort in with ASEAN countries

- 1st Workshop: 15-16 April, Yogyakarta, Indonesia
- 2nd Workshop: 4-5 June 2015, Hangzhou, China
- 3rd Workshop/expert meeting: Proposed in December 2015, Bangkok, Thailand

Outcomes

- *Guidelines - EO in emergency response*
- *SOP - Effective use of international mechanisms and EO in emergency response*

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Upcoming event in Mississippi, USA

A Workshop About Geospatial Technologies for Crisis and Disaster In the Developing World" from 7-10 October 2015

Center for Interdisciplinary Geospatial Information Technologies
DELTA STATE UNIVERSITY
Join in. Stand out.

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GEOSPATIAL INFORMATION & TECHNOLOGY ASSOCIATION®

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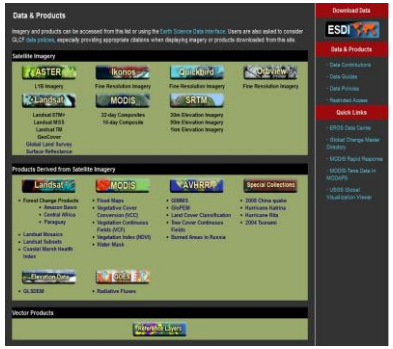
Earth Observation – changing dynamics



Free/low cost thematic data sets

- DCW
- Openstreetmap
- ESRI
- Global Landuse

Free/low cost Image data sets

- Google earth
- Global DEM (ASTER and SRTM)
- Advanced Very High Resolution Radiometer (AVHRR)
- MODIS
- Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER)
- Landsat MSS/TM data
- SPOT Vegetation

OpenStreetMap
The Free Wiki World Map

Ushahidi

Google

bhuvan Beta
Gateway to Indian Earth Observation

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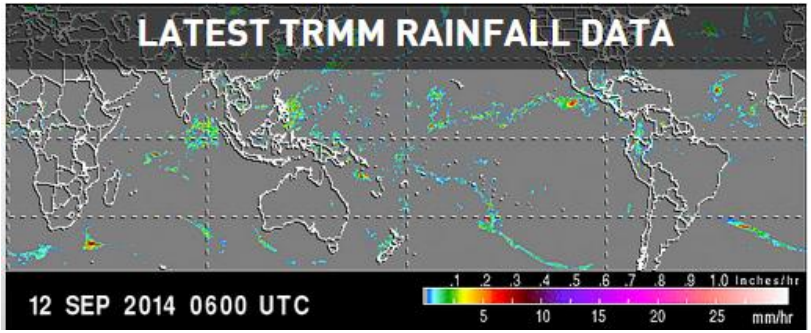
Earth Observation – changing dynamics

- **Worldview-3** from DigitalGlobe (Very High resolution images)
- **Sentinel satellites** (radar and multi-spectral imaging instruments for land, ocean and atmospheric monitoring)
- **TanDEM-X** (TerraSAR-X add-on for Digital Elevation Measurement)
- **ICEsat-1 & 2** (pioneered the use of laser altimeters in space – to measure ice sheet elevation change)
- **Landscan** (Global population data)
- **GPM** (new standard for precipitation measurements from space, based on success of TRMM)



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Overview of the conference

	Monday 14 September 2015	Tuesday 15 September 2015	Wednesday 16 September 2015
Morning	**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	**09:00-10:30 Session 3 (Led by panellists)** Foster public and private collaboration **11:00-12:30 Session 4 (Led by panellists)** Empowering the communities to prepare for disasters	**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**
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	**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)	**14:00-16:30 Working Groups** 1. Drought – How UN-SPIDER network can support? 2. Lesson Learned from Nepal Earthquake – Earth observation perspective 3. Capacity building and emerging technologies **16:30 Report: Working group outcomes**	**Institutional visit** Group 1: National Disaster Reduction Centre of China Group 2: Yungang Satellite Earth Station
Evening	**18:00 Icebreaker by the Ministry of Civil Affairs, P.R.C**		

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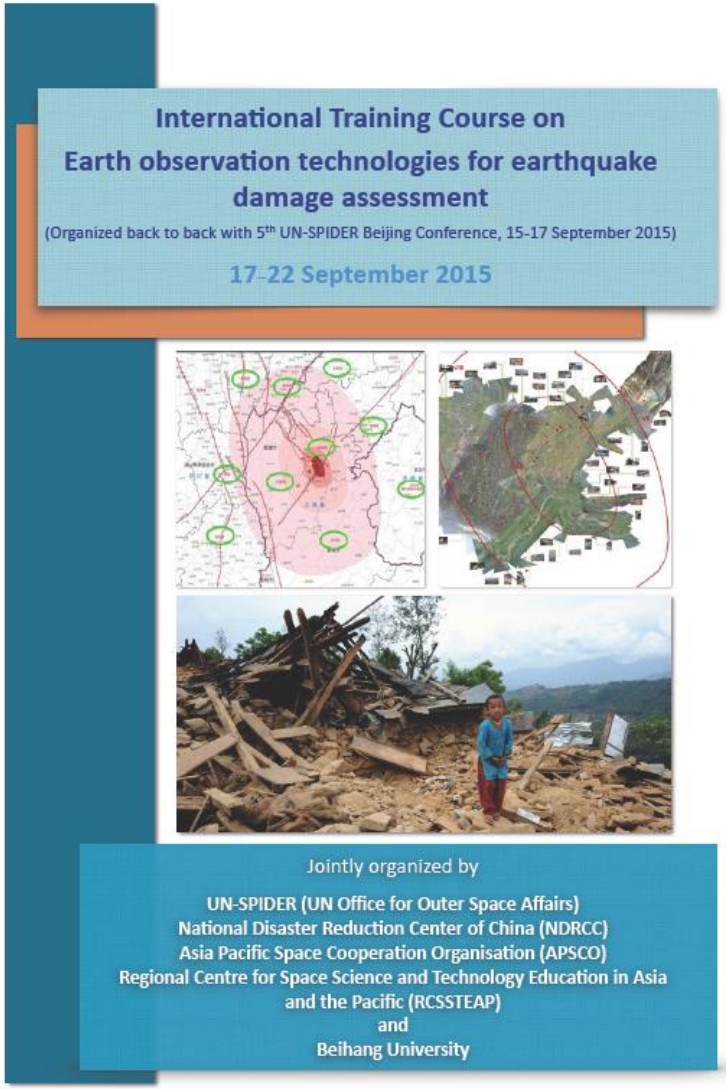

International Training Course on Earth observation technologies for earthquake damage assessment 17-22 September 2015

NDRCC APSCO RCSSTEAP CHINA BEIHANG UNIVERSITY 1952

Experts

- *ICIMOD*
- *DigitalGlobe*
- *UN-SPIDER*
- *ISRO*
- *NDRCC*

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