



Challenges in using Space based Information - Climate Change and Disaster Risk Reduction Perspective

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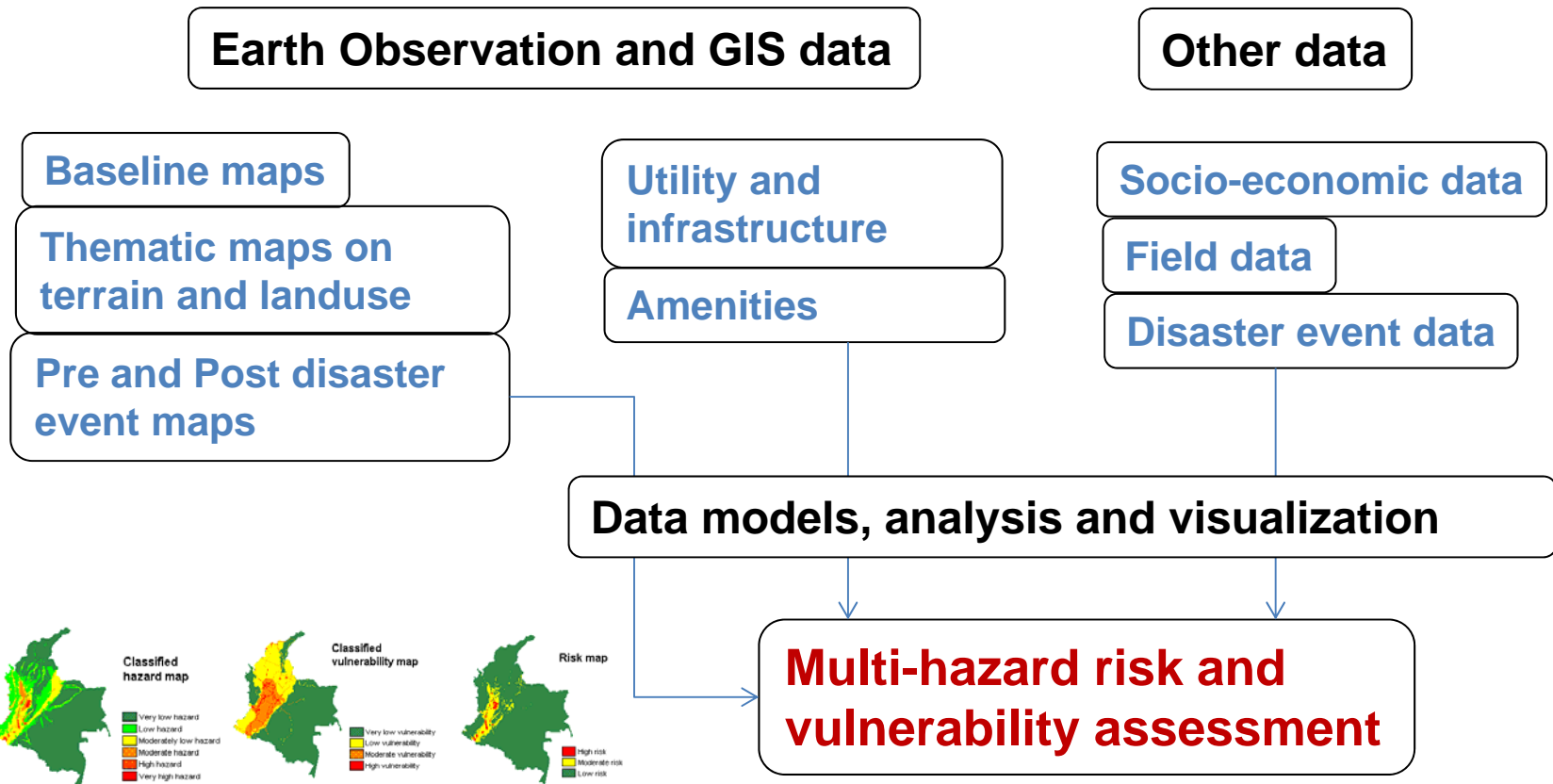
(Third High Level Forum on UNGGIM - Sustainable Development with
Geospatial Information, 22-24 October, Beijing, China)



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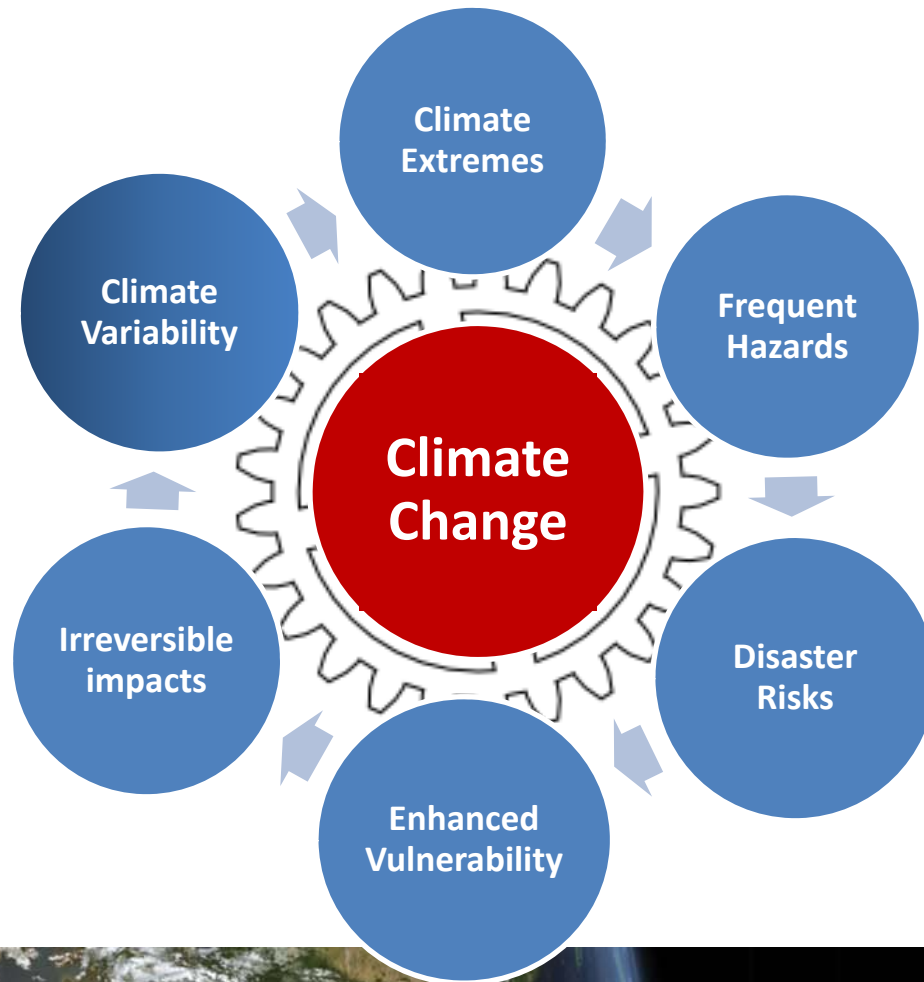


Multi-hazard risk assessment – urgent need





Climate change extremes and disasters



- **Global level predictions exist**
- **Better understanding of challenges at national/sub-national level**
- **generate information needed for decision making**





Geospatial data sources



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



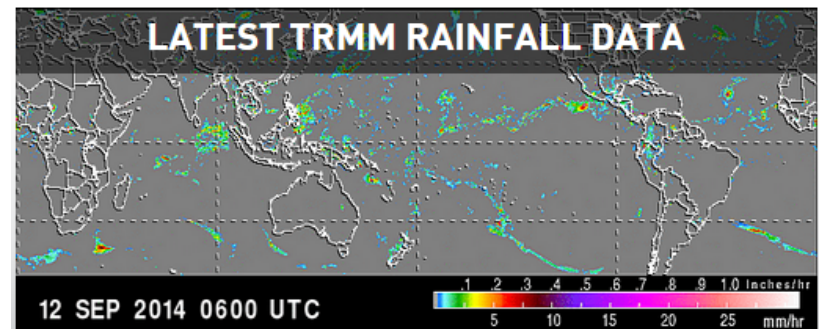
OpenStreetMap
The Free Wiki World Map





Advanced Earth observation

- **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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**UN-SPIDER
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Lessons learned

Baseline & thematic GIS database

Inadequate availability and access limits applications of earth observation and geospatial information in disaster management

CHALLENGES

- Accessibility, restrictions...
- Appropriate scale
- Completeness of GIS layers
- Issues: Data formats, interoperability etc.



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Lessons learned

NSDI or Geospatial policies/ Data sharing

- Takes long time to formulate and get endorsed
- Disasters can not wait...

CHALLENGES

- Effective data sharing not only during emergencies, but also for Disaster Risk Management
- Capacity in Disaster Management Agencies to utilize geospatial data resources & products





Lessons learned

Space based information for DRR and Climate Change

- Every element of risk is 'spatial' in nature
- Precise understanding of climate change impact and disaster risk assessment calls for use of Space-based and geospatial information

CHALLENGES

- Potential of space based information is not fully utilized
- Access to remote sensing data (policies, budget...)
- Expertise in using remote sensing data





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Towards post HFA

World Conference on DRR
Sendai, JAPAN, 14-18 March 2015

UN-SPIDER at WCDRR

**Proposed Working Session Earth observations to support
national and local disaster-risk reduction initiatives**

Co-organisers:

United Nations Office for Outer Space Affairs (UNOOSA);

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

Group on Earth Observations (GEO);

Committee on Earth Observation Satellites (CEOS);

Food and Agriculture Organization (FAO)

UNITAR's Operational Satellite Applications Programme (UNOSAT);

Ministry of Education, Culture, Sports, Science, and Technology of Japan (MEXT);

Ministry of Disaster Management and Relief of Bangladesh (MoDMR);

German Aerospace Center (DLR);

Japan Aerospace Exploration Agency (JAXA);

National Disaster Reduction Centre of China (NDRCC);

Inter-institutional Team for Geo-Spatial Information of the Dominican Republic (EIGEO);

Centre of Excellence on Space Technology for Disaster Mitigation of the Chinese Academy of Sciences and the World Academy of Sciences (CAS-TWAS-SDIM);

The Asian Disaster Reduction Center (ADRC);

The International Research Institute of Disaster Science, Tohoku University of Japan (IRIDEeS).



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Thanks

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