



Global Initiatives of Disaster Management Where Do We Stand?

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WHO IS SWF?

The Secure World Foundation (SWF) is a private operating foundation dedicated to the secure and sustainable use of space for the benefit of Earth and all its peoples







CREAF





WHAT DOES THE FOUNDATION DO?

- Non-profit, international NGO founded in 2004
- Offices in Brussels, Colorado, and Washington DC
- Liaise/partner with international organizations, governments, agencies, militaries, industry, civil society, academia
- Promote cooperative solutions for space sustainability
- One core area is Space for Human and Environmental Security
- GEO Observer Plenary November, 2012, Foz do Iguacu, Brazil

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OUTLINE

• What is a disaster & disaster management?

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- Current situation
 - Technological
 - political situation
- Challenges
- Feeling the gaps
- SWF relevant activities
- Conclusion/Recommendations





WHAT IS A DISASTER?

A natural or man-made

- UNEAP

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Fires, nuclear incidents, oil spills

Climatic/hydrologi cal: drought, flood, cyclone, wildfires Geo-hazard: earthquakes volcanic eruptions, tsunami, landslides

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WHAT IS DISASTER MANAGEMENT?

Preparedness -- activities prior to a disaster. Wigstion Examples: preparedness plans; emergency exercises/training; warning systems.

Response -- activities during a disaster. Examples: public warning systems; emergency operations; search and rescue.

Recovery Recovery -- activities following a disaster. Examples: temporary housing; claims processing and grants; long-term medical care and counseling.

Mitigation - activities that reduce the effects of disasters.

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Examples: building codes and zoning; vulnerability analyses; public education.

Source: Information and Communication Technology in Disaster Risk Management - presentation prepared by Sujit Mohanty, Manager-Disaster Information Systems, GOI-UNDP Programme, Ministry of Home Affairs, GOI, 2005

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11/14/2012





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CURRENT SITUATION

TECHNOLOGICAL SPACE APPLICATIONS

POLITICAL INTERNATIONAL RESPONSE









TECHNOLOGY Space Applications





REMOTE SENSING (weather, land, ocean)

- Electro optical multispectral images
 - Affected by cloud cover
 - Not effective at night
 - Analysis techniques broadly known
- Synthetic Aperture Radar (SAR)
 - Unaffected by cloud cover

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- Analysis tricky; requires special analytic skills

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GLOBAL POSITION, NAVIGATION & TIMING (GNSS)

- Global Positioning System (GPS)—U.S.
- GLONASS RUSSIA
- COMPASS CHINA
- GALILEO (in development)—EUROPE
- Provide accurate positions for map making

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 Accurate positions for victims, areas of major destruction, rescue personnel

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Source: http://www.asladvancedsys.in/p ub-GNSS.shtml

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SATELLITE COMMUNICATIONS

- Individual satellite phones
- Base stations connectivity through satellites
- Satellite broadband





INTERNATIONAL RESPONSE TO NATURAL DISASTERS





GEPW-7 Barcelona 15-16 April 2013 INTERNATIONAL CHARTER: SPACE & NATURAL DISASTERS (1/3)

Activation: 364 times / 2013: 33 times



Disaster Charter Activations in 2013

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Scope: To coordinate satellite data providers' response to major 14 Members: ESA, Argentina, Brazil, Britain, Canada, China, France, India, USA, Japan, Germany, Korea, EUMETSAT Data provided: more than 30 satellites from space agencies & commercial providers Problems: Timely delivery as is smaller disasters and limited

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ACTIVATION OF THE CHARTER (2/3)



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Charter Activations

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Useful Links



INTERNATIONAL CHARTER SPACE AND MAJOR DISASTERS



Cyclone Haruna in Madagascar



Type of Event	Ocean Storm - Cyclone
Location of Event	Madagascar (Morombe, Taolagnaro)
Date of Charter Activation	23 February 2013
Charter Requestor	Direction Générale de la Sécurité Civile et de la Gestion des Crises - COGIC - on behalf of Bureau National de Gestion des Risques et des Catastrophes (BNGRC)
Project Management	SERTIT

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Description of the Event

Cyclone Haruna struck southwest Madagascar on Friday 22 February 2013, and made landfall as a Category 2 storm with wind speeds of up to 105 mph. The storm fuelled itself over Mozambique with gusty wind speeds of up to 95mph as it headed towards the island of Madagascar.

The cyclone's cloud-filled eye was centred near 23.3 south latitude and 44.2 east longitude on the largest city and capital of Antananarivo, Madagascar.

The worst affected districts are; Morombe, Taolagnaro and Toliary. So far it has been reported that 10 people were killed, 17 people were hurt and nearly 3,000 others were affected and some 1,000 people were evacuated to temporary shelter during the storm.

Over the weekend, the island experienced torrential rains and heavy flooding. The Joint Typhoon Warning Center (JTWC) expects the storm to weaken as it moves back into cooler waters of the Southern Indian Ocean.

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View the SERTIT Rapid Mapping webpage for this event



UN-SPIDER

UNITED NATIONS PLATFORM FOR SPACE-BASED INFORMATION FOR DISASTER MANAGEMENT AND EMERGENCY RESPONSE

- Established by Resolution 61/110 of the General Assembly in 2006 within the U. N. Office of Outer Space Affairs (UNOOSA)
- Provides access to all countries and all relevant international and regional organizations to all types of space-based information and services relevant to disaster management to support the full disaster management cycle, including capacity building

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- Cartographic service to the end users
- COPERNICUS Emergency Response Service (2009): 100 times
- Emergency Support service for preparedness/prevention or post-crisis purpose: 50 maps
- Activation: registered users (European Civil Protection Agencies & Humanitarian Actors)







Greece - EVROS Burnt areas extent map Detail Situation the 27th of August 2011 Location Diagrams





Greece declared a state of emergency Thursday Aug 25, 20 Greece declared a state of emergency Thursday Aug 25, 20 as fires became uncontrollable. High winds are fanning t wildfrees and hampering operations to extinguish the blaze many fronts in the Evros region, NE Greece. Many peop were evacuated as the fire swept through the forested ru area. Otherwise, a natural reserve known for its bio-diversi the Dadia National Forest Park, is at risk. This map shows t lobase limits or barn existe on the hortext. Dh fire a largener to barn state. coverage and associated shadows, the fire line preser uncertainty limits. In addition, a few older burn scars occurr sooner in the season can have been included inside the limit:



Scale: 1:25 000 for A1 prints Data Sources

Potentially fire affected areas extracted from : RapidEye image (6.5m) acquired the 27th of August 2011 © SERTIT 2011

Background layer Natural colors RapidEye image (6.5m) acquired the 27th of Aug 2011 © RapidEye AG 2011

Thematic layers and toponyms © SERTIT 2011, ESRI, Open Street Map

Frameworks elaborated for this Rapid Mapping Activity a realised to the best of our ability, within a very short time fram during a crisiskernice, ophimising the material available. All geographic information has limitations due to the sca resolution, date and interpretation of the original source materia No liability concerning the content or the use thereof is assum by the producer. The research leading to these results in received funding from European Community's Sever Framework Programme (FP772007-2013) under grant agreement n° 21802.

Map produced the 27 08 2011 by SERTIT © SERTIT 2011 sertit@sertit.u-strasbg.fr http://sertit.u-strasbg.fr





- Disaster: one of 9 GEO Societal Benefit Areas (SBA)
- Aim: Enable the global coordination of observing and information systems to support all phases of the risk management cycle associated with hazards (mitigation and preparedness, early warning, response, and recovery)
- Focus on 3 main areas:
 - 1. Provide support to operational systems and conduct gap analyses in order to identify missing data, system gaps, and capacity gaps
 - 2. Enable and inform risk and vulnerability analyses
 - 3. Develop regional end-to-end systems with a focus on building institutional relationships





CEOS Disaster team (2008)

Led by Canadian Space Agency

Top priorities:

- Increase and strengthen the contribution of EO satellite to the various DRM phases through a series of coordinated enlarged actions
- Raise the awareness of politicians, decision-makers and major stakeholders on the benefits of using satellite EO in all phases of DRM

How?

- Improve the coordination between EO satellites observations and take appropriate actions aiming at better distributing EO satellite data
- Fostering its use by the DRM users

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CHALLENGES (1/2)

- We MUST be able to do near real time data acquisition, analysis, and dissemination to end users
- Problems in getting maps to end users in the impact areas

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 No clear division of tasks and awareness of who is doing what







CHALLENGES (2/2)

- Data available become more and more but:
 - Lack of understanding of the needs of the user
 - No standards/protocols for an unify format
 - The legal issues become more complex (Privacy, Data Ownership, National Security, Data Quality/Liability, Complexity impacts ability/willingness to share)
 - No coordination of the use of the collected data
- International mechanisms often lack coordination and do not benefit from potential synergies between institutions and relevant programmes











WAYS OF IMPROVEMENT

- Facilitate communication between providers of geospatial information and the disaster-risk reduction and emergency response community to bridge the gap between them
- Liaise with partners to ensure that existing regional networks can be part of the developing approaches to implement disaster management capacity building initiatives
- **ONE ORGANIZATION** (eg. UN-SPIDER) could facilitate coordination among existing mechanisms and space agencies

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 Raise awareness and conduct capacity-building efforts targeting decision-makers and users of space-based data



Increasing awareness of potential benefits from space assets

- United Nations/Chile Workshop on Space Technology Applications for Socio-Economic Benefits (November 2012, Santiago, Chile)
- Space for Human and Environmental Security in the Americas: Space policy, Long-term Sustainability and Cyber-health (April 2012, Mexico City, Mexico)

> Facilitating dialogue and cooperation at international level

- CEOS Working Group on Capacity Building and Data Democracy (February 2012, Ilhabela, Brazil – March 2013, Frascati, Italy)
- UN-SPIDER International Expert Meeting on Crowdsource Mapping for Disaster Risk Management and Emergency Response (December 2012, Vienna, Austria)

Promoting ways to enhance use of space assets for human and environmental security

- Simulation on Use of Space Applications in Humanitarian Operations (May 2012, Warsaw, Poland)
- UN-SPIDER Bonn Workshop on Disaster Management and Space Technology: "Strengthening global synergies through knowledge management, portals and networks" (April 2012, Bonn, Germany)
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- **Foster use of new technologies** (crowdsource and CRS methodologies)
 - Develop methods & standards
 - Explore legal aspects of these methods
- **Increased effort on training**
 - Building capacity among ALL communities to carry out their own analysis of satellite data
 - Training to response teams in using spacederived maps
- Much greater international sharing of space-derived data (such as CBERS & Landsat)
- **Better coordination** among the relevant institution









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