

Understanding Risk with Earth observations

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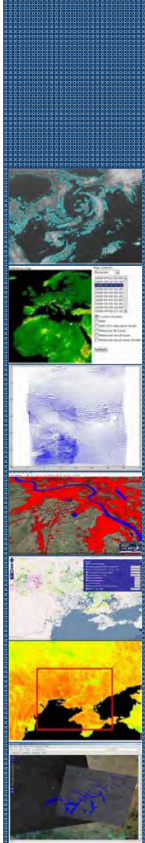
**WGISS-34,
Hyderabad, India
24-28 September 2012**



Understanding Risk Forum



- Held in Cape Town, South Africa, from July 2-6, 2012
- ESA alongside the South Africa National Space Agency chaired a session on “**Satellite EO and disaster risks**”
 - Session lead: P. Bally, ESA; J. Olwoch, SANSA



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UR UNDERSTANDING
RISK
Innovation in Disaster Risk Assessment

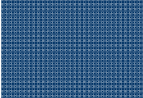
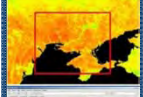
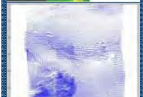
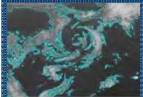
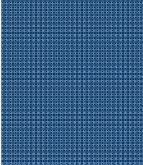


Understanding Risk Forum



- **Agenda**

- 1. **Introduction**, *Jane Olwoch*, South African Space Agency (SANSA)
- 2. **ESA's overview of EO capabilities for DRM**, *Ph Bally* (ESA)
- 3. **Urban Risk Assessments with the use of Earth Observation - WB-ESA collaboration**, *Anthony G. Bigio*, the World Bank
- 4. **Earth Observation technologies for flood mapping and hydrological modelling in Namibia**, *Guido Van Langenhove*, Head of the National Hydrological Services in Namibia
- 5. **SANSA's contributions towards disaster monitoring and assessment**, *Dr Paida Mangara*, South African Space Agency (SANSA)
- 6. **Applications of Earth Observation data for disaster risk management**, *Hicham EZZINE*, Regional Centre for Disaster Risk Reduction (RCDRR), Egypt



EO to support the full Disaster Management Cycle



Info on:

- structural / non-structural measures

**Preparation/
Prevention**

Info on:

- Hazard extend and probability
- Access to warning of the pop.
- Response capacity of the pop
- Awareness of the pop.

Risk Analysis

Alertness

Disaster

Reconstruction

Emergency Relief

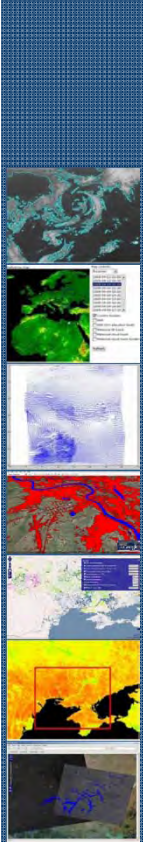
**Transition Phase
Relief & Reconstruction**

Info on:

- Damage pattern
- Self help capacity of the population
- Economic damage

Info on:

- Number of affected people (Displaced, dead)
- Shelter capacities
- Relief capacities



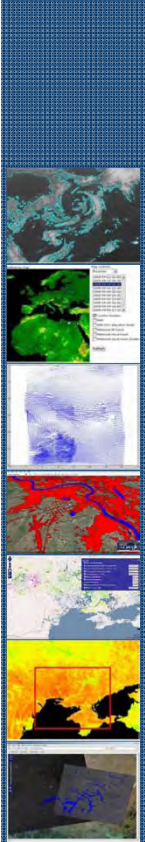
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Contribution of EO to DRM



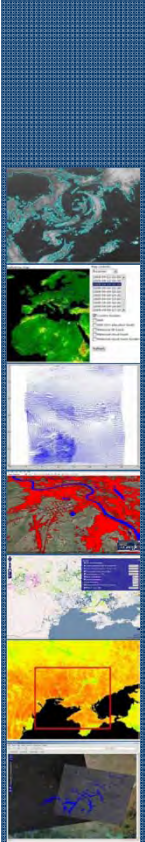
- Satellite EO can help science & operational users in:
 - **1. Exposure/Asset mapping/Asset modeling**
 - A wealth of information types (many areas)
 - **2. Hazard mapping - *for instance*:**
 - scientific data to better characterize/monitor hazards
 - operations: low level of sophistication but rapid information on the hazard impact (and damage zoning)
 - operations: sophisticated information on hazard/risk (e.g. risk inventory)



Types of hazards



- **weather-related** hazards such as Floods, Forest Fires, Ice Jams, Landslides, Storms (e.g. hurricanes, cyclones, typhoons, tornados)
- **geo-hazards** such as Earthquakes (and landslides), Tsunamis (provoked by submarine earthquakes), Volcanic eruptions.
- **technological disasters** such as Oil Spills due to platforms or ships accidents.



Latest Charter activations



Floods are one of the most beneficial from EO!

Disaster Charter - Recent Activations

www.disasterscharter.org/web/charter/activations

INTERNATIONAL CHARTER SPACE AND MAJOR DISASTERS

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Charter Activations

RSS XML

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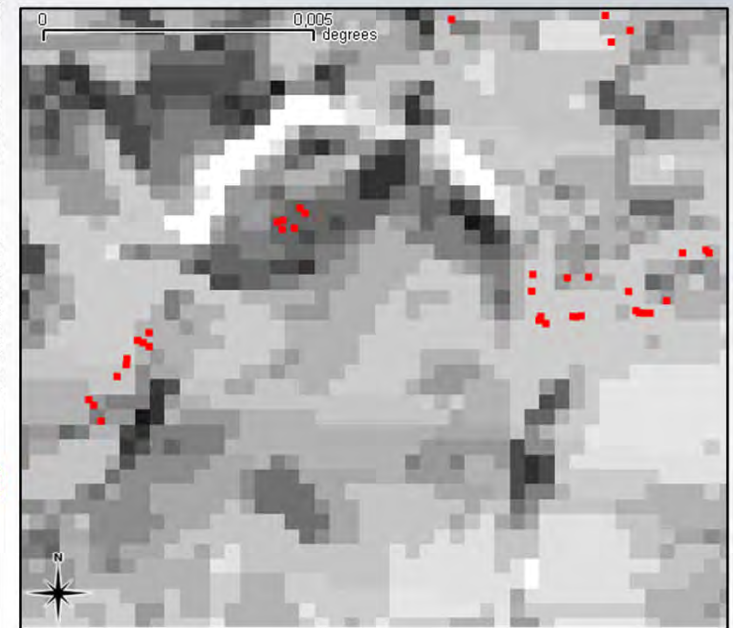
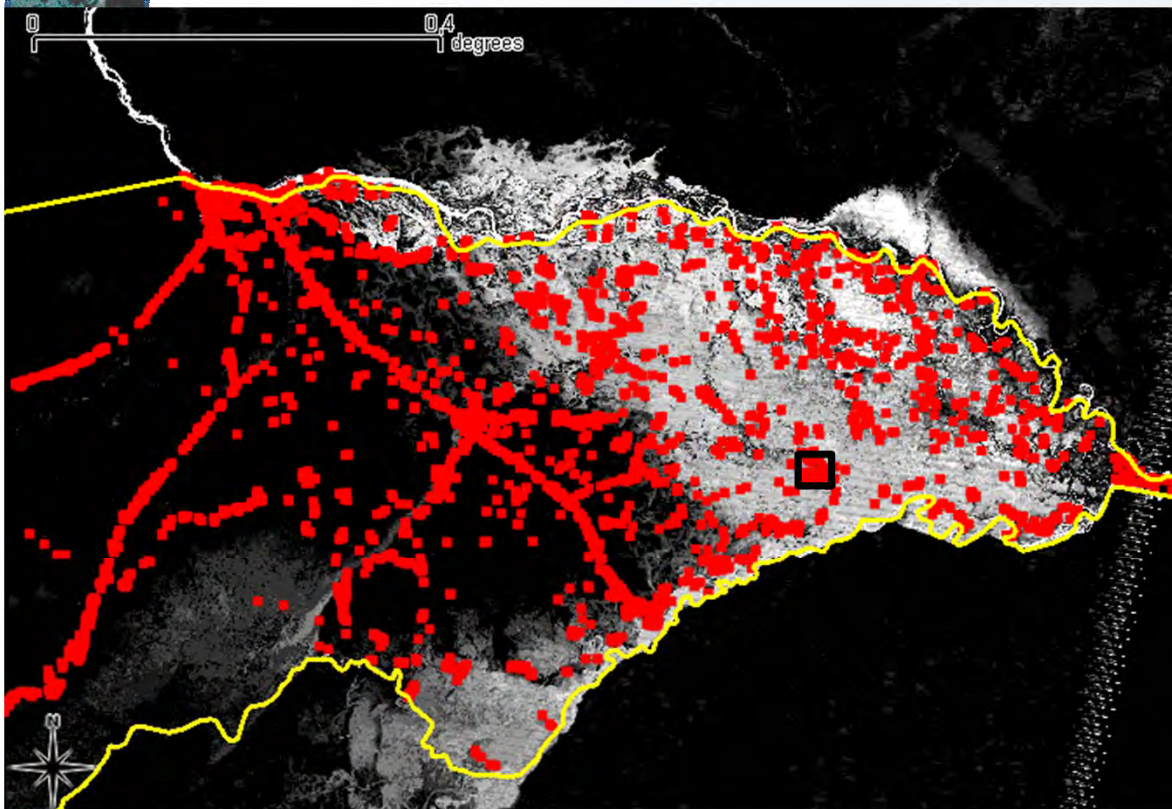
24 September	Flood in South Sudan
18 September	Flood in Pakistan
16 September	Fires in Ecuador
15 September	Floods & Landslides in India
7 September	Earthquake in southern China
6 September	Extreme floods in North province of Cameroon
31 August	Ocean Storm Gulf Coast of the US
30 August	Flood in West Africa / Nigeria
28 August	Flooding in Niger
27 August	Flooding in Senegal
22 August	Flooding in Russia (Black Sea region)
15 August	Earthquake in Iran
13 August	Fires in North Algeria
8 August	Floods in Philippines
10 July	Floods in Russia (City of Krymsk)
29 June	Flood in Assam State, India
24 June	Floods in Canada
21 May	Eruption of lava from Fuego volcano in Guatemala
	Flood in Minxian County in

Floods

Flood Risk Mapping for Namibia



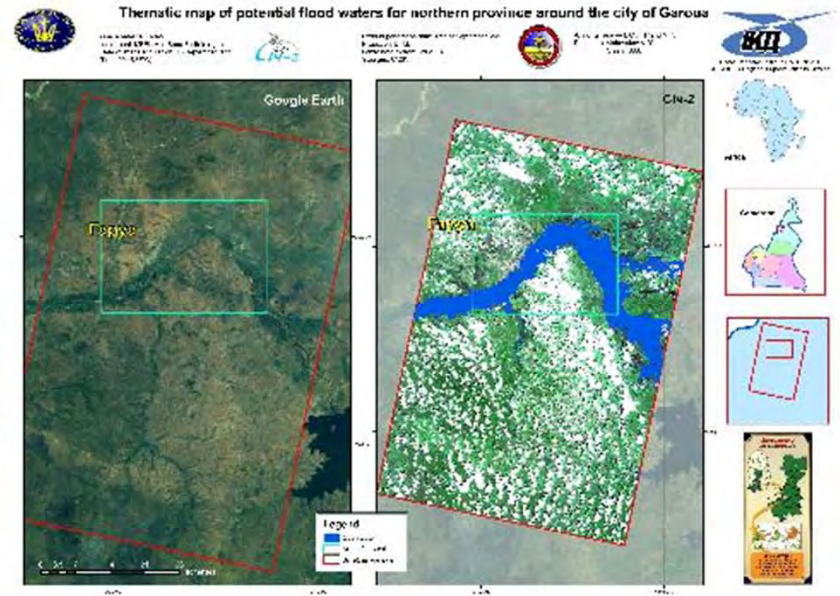
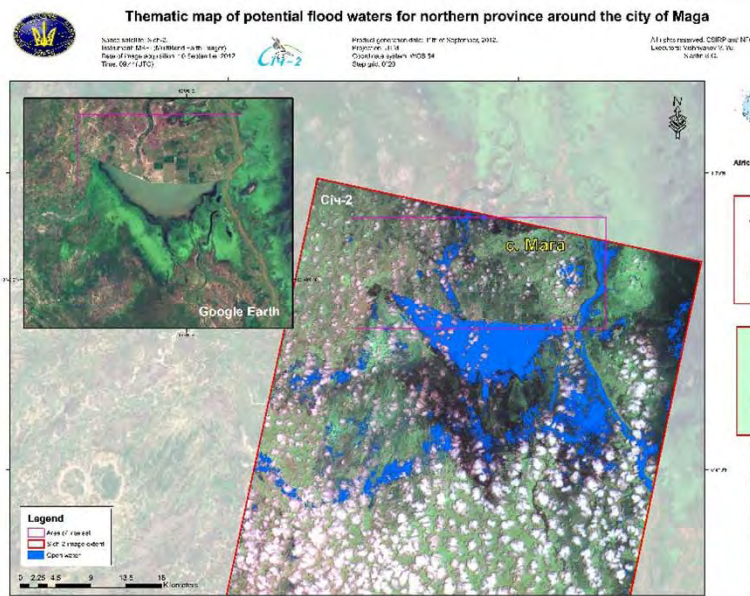
Dwelling Density



Cameroon, 2012



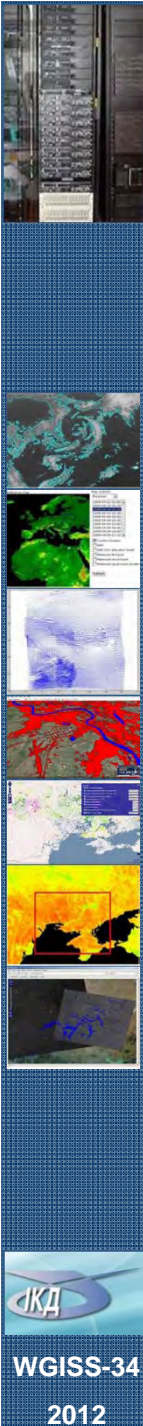
- **Ukraine to support Cameroon floods with Sich-2 data**
 - 10 September 2012 over city of Maga
 - 15 September 2012 over city of Garoua



Findings

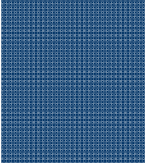
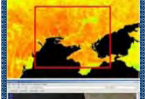
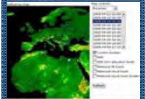
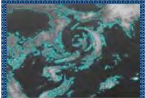
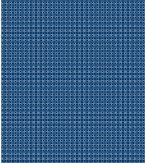


- Crisis Response: the **International Charter is growing**
 - more users (CPAs & Humanitarian community), increased performance, Rapid mapping being adopted by CPAs
 - Access for users should be improved – in particular in Africa (Universal Access to the International Charter).
- Risk prevention/mitigation:
 - **capacities devoted to DRM users** are established or being developed (e.g. GMES EMS, 50+ Geological Surveys are engaged via SLAs); quite embryonic in Africa (varies from country to country).
- To deliver Data & VA services requires to address **various challenges**: cost, data processing capacity, thematic knowledge, raising awareness & capacity building.
- Data and Information Sharing
 - Access to **information and sharing data** is a important step to reducing risk
 - The need to work with countries to enable them manage and share their data





Thank You!



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