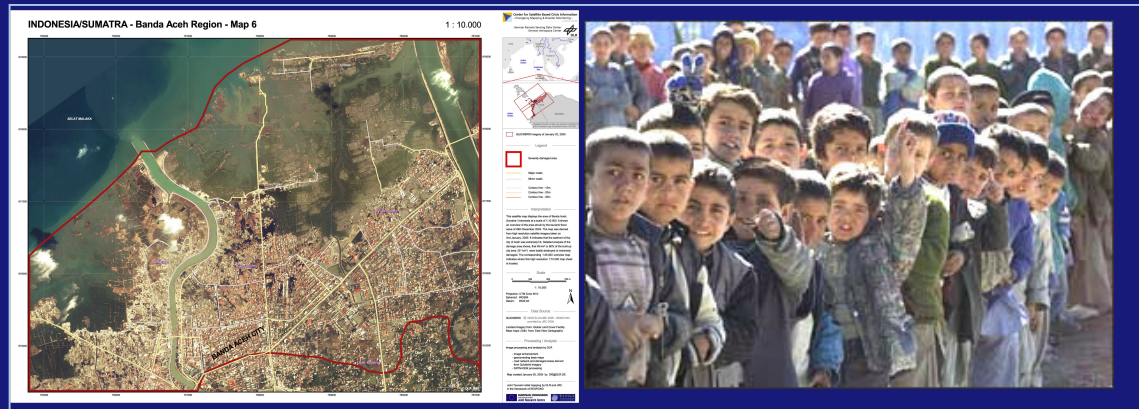




GMES activities in Emergency Humanitarian Mapping: **Respond** *Experience and Lessons learned*



Presentation to: **COPUOS, 44th Scientific & Technical Subcommittee**

by:

Dr Nick Veck

*on behalf of the **Respond** Consortium*

UN, Vienna, 15th February 2007

What is Respond?

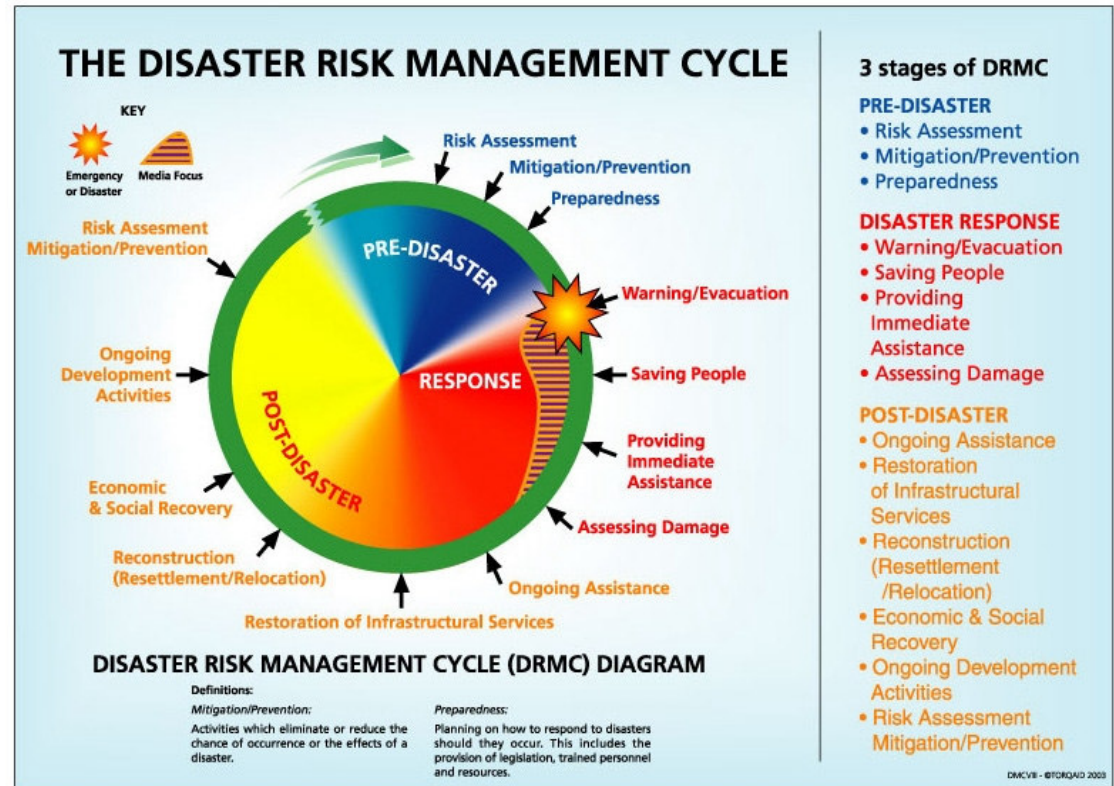
- **Respond** began during 2004, as one of the European Space Agency (ESA)'s GMES Service Element (GSE) projects.
- **Respond** is an alliance of European and International organisations, working with the humanitarian community to improve access to maps, satellite imagery and geographic information.
- The **Respond** mission is to increase the efficiency and effectiveness of the European and international humanitarian community, through the appropriate and reliable application of geographic information.

Respond: Aid Cycle & Sustainable Development

- EO-based geographic information is relevant for the entire humanitarian intervention cycle:

 Mitigation
 Response
 Recovery
 Preparedness

- It is relevant for both slow-onset and rapid-onset emergencies.



How is Respond doing this?

- **Respond** is **User driven** – delivering what is asked for:
 - ↳ Close connection to the users, through established In-sector Providers.
- Covers **operational** use of currently available map and satellite data in **emergency** situations, bringing together enough **skills and capacity** to build a **guaranteed service**.
- **Apolitical and impartial** distribution mechanisms, to all sectors of the humanitarian community.
- Includes infrastructure, **in-field** activities, **training** and **promotion**.
- **Underpinned by GMES** – European (EC/ESA) high-profile initiative.

Strong Consortium – Whole Supply Chain

Prime: Infoterra UK Ltd



Core Users



Auswärtiges Amt

Technisches Hilfswerk



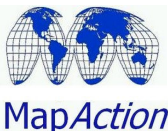
Deutsches Rotes Kreuz



In-sector providers – already providing services to specific segments



Value Adding Companies – skilled in supplying products to these services



Consultants and Systems Engineers, etc



Respond Portfolio content themes

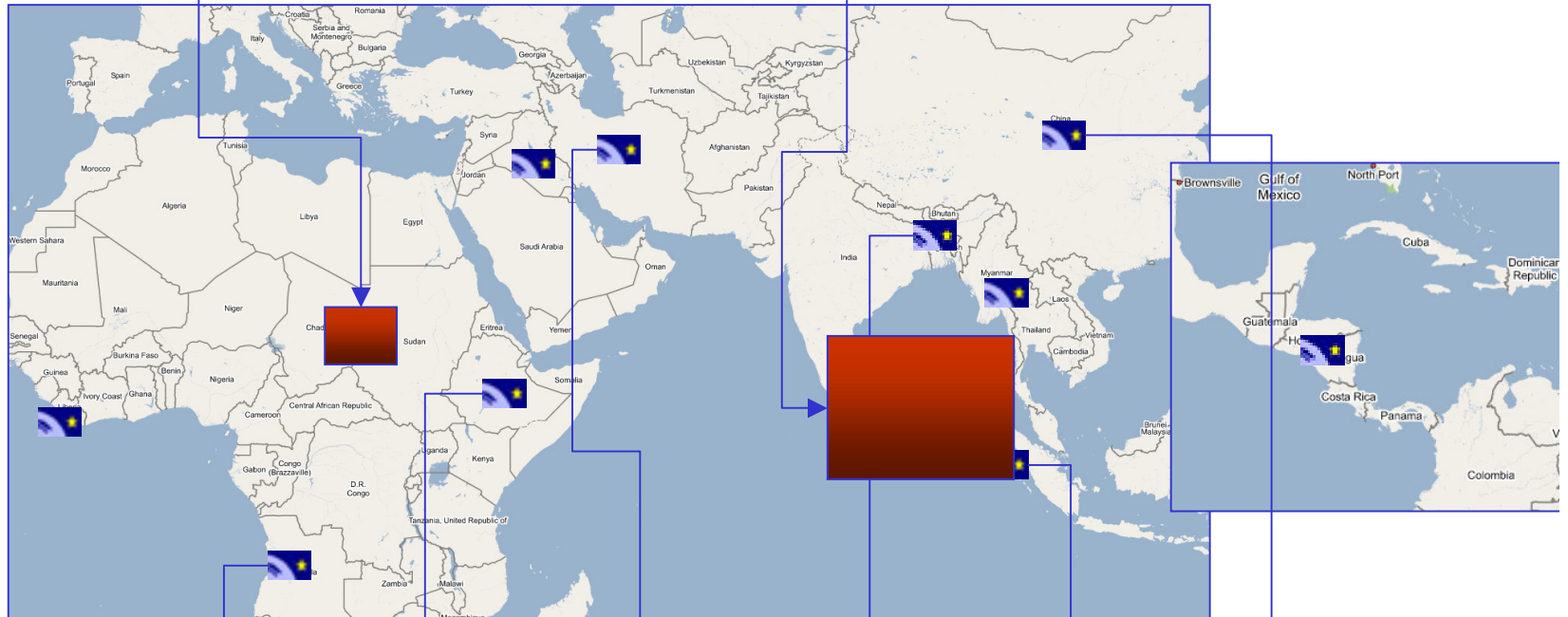
Portfolio Theme	Typical Content Type
1: Basic maps (digital, paper, EO, non-EO)	Maps & Map Archive to use for other themes
2: Crisis & Damage Mapping	Damage Maps
3: Situation Maps	Maps and GIS
4: Refugee/IDP support maps	Maps and GIS
5.1: Thematic maps for Prevention / Reconstruction Planning purposes	Thematic Maps
5.2: Health Maps	Thematic Maps
5.3: Environmental Impact Assessment Maps	Thematic Maps
6: Alert Services	Global Services
7: Communication / reporting resources	Ad-hoc Mapping and Graphics



Respond – Some of the services delivered so far...

Darfur Folio

Tsunami Folio



Epidemic

Flood

Earthquake

Flood

Earthquake

Flood

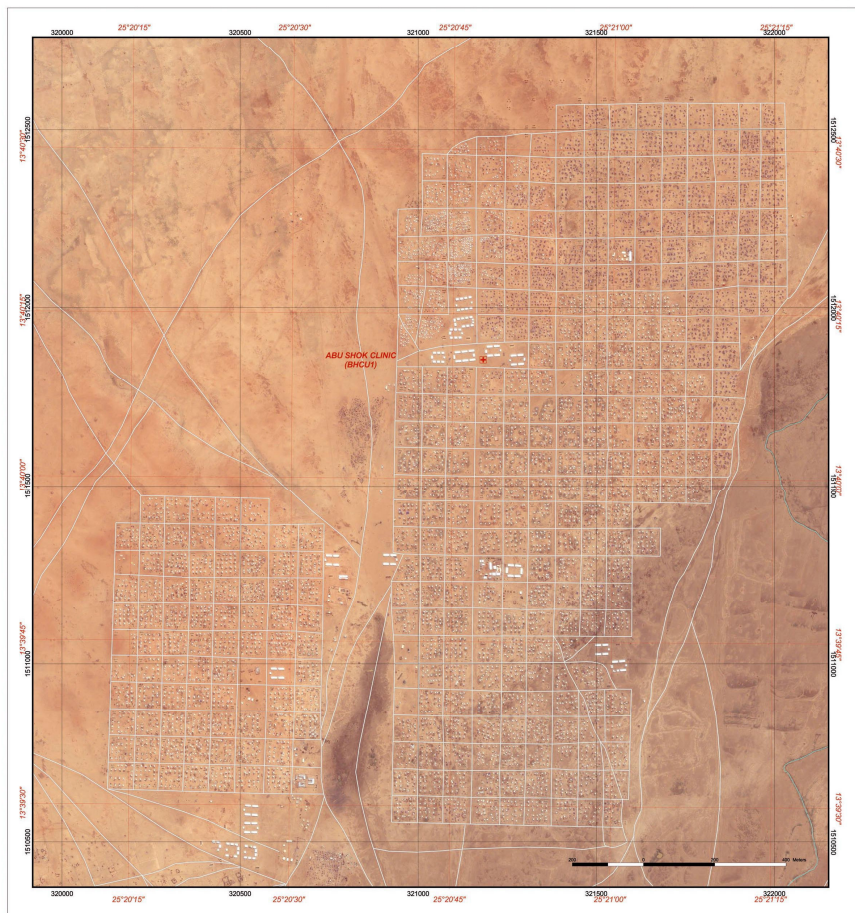


**HUMANITARIAN
GLOBAL MAPPING SERVICES**

Mapping of Al Fashir: Guba Clinic (1:2k) and Abu Shoc IDP camp (1:5k)

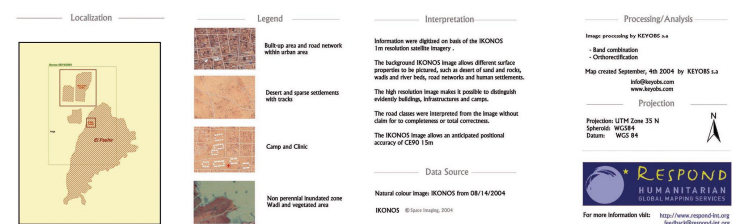
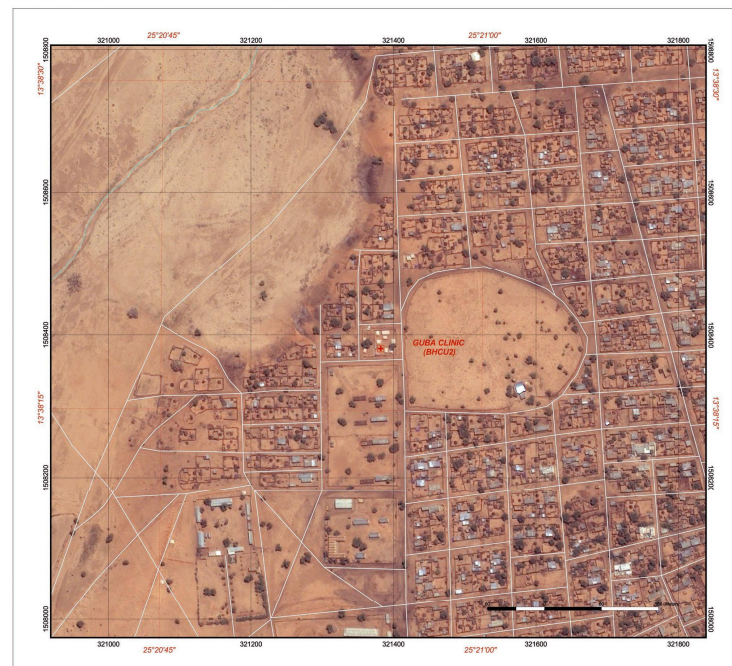
SUDAN/DARFUR - ABU SHOK IDP CAMP

1:4000



SUDAN/DARFUR - GUBA CLINIC

1:2000

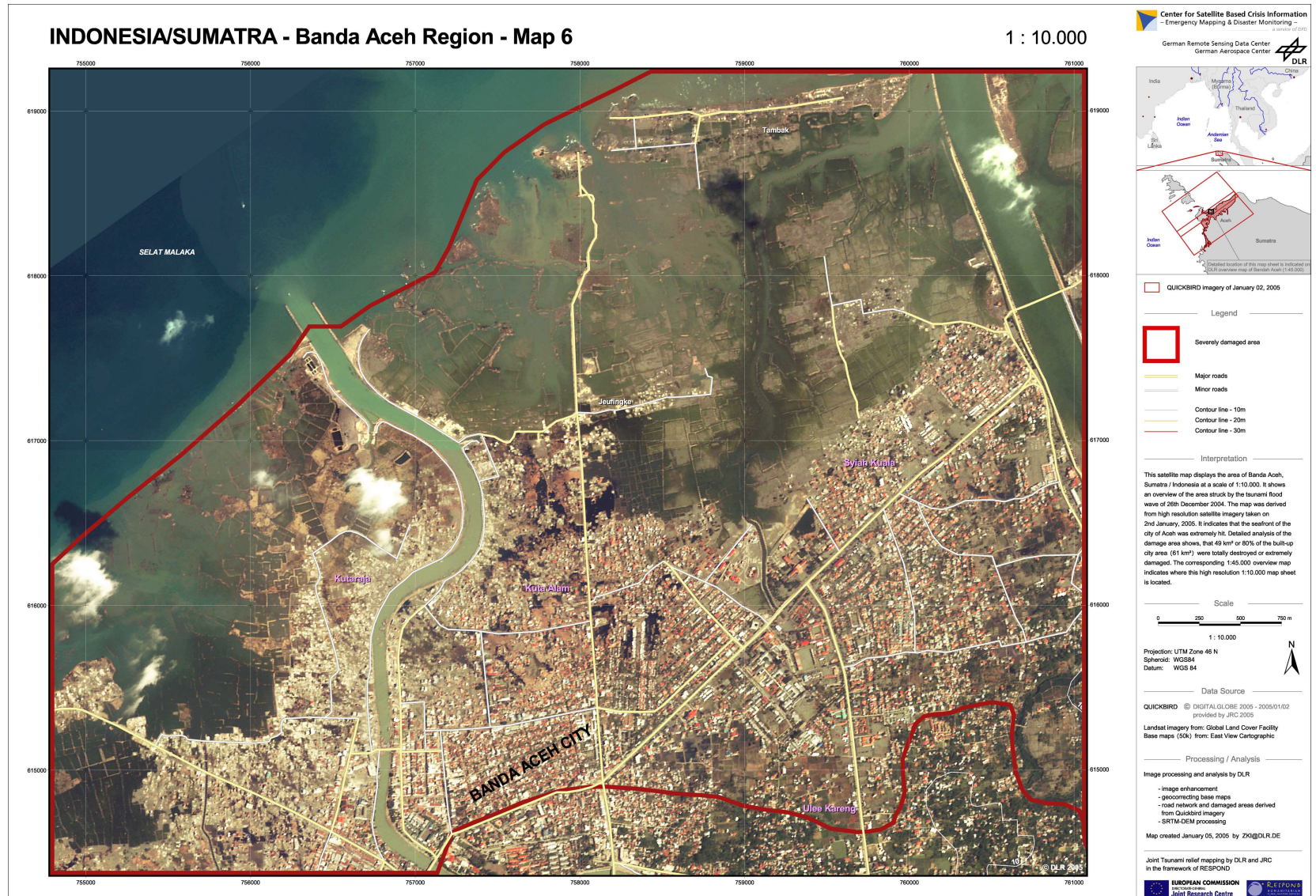
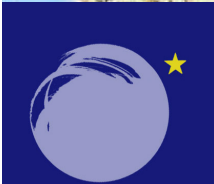
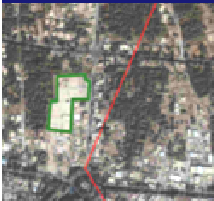


Responding to the Asian Tsunami:

- Need for emergency mapping information during the crisis:
 - First few days: *Location of affected areas;*
 - First month: *Detailed information on affected areas to help stabilise the situation;*
 - Thereafter: *Systematic damage assessment and background information for reconstruction.*
- **Respond** operational partners immediately in action.
- **Respond** started with a co-ordination and product distribution role – now partners are still providing information for reconstruction.



Asia Tsunami Dec. 2004 : A few examples of Maps produced by Respond Consortium members.



Asia Tsunami Dec. 2004 : A few examples of Maps produced by Respond Consortium members.

Sri Lanka South West Coast Galle Area

Before and after disaster map



Disaster type : Tsunami
Disaster date : 26 December 2004

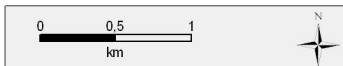
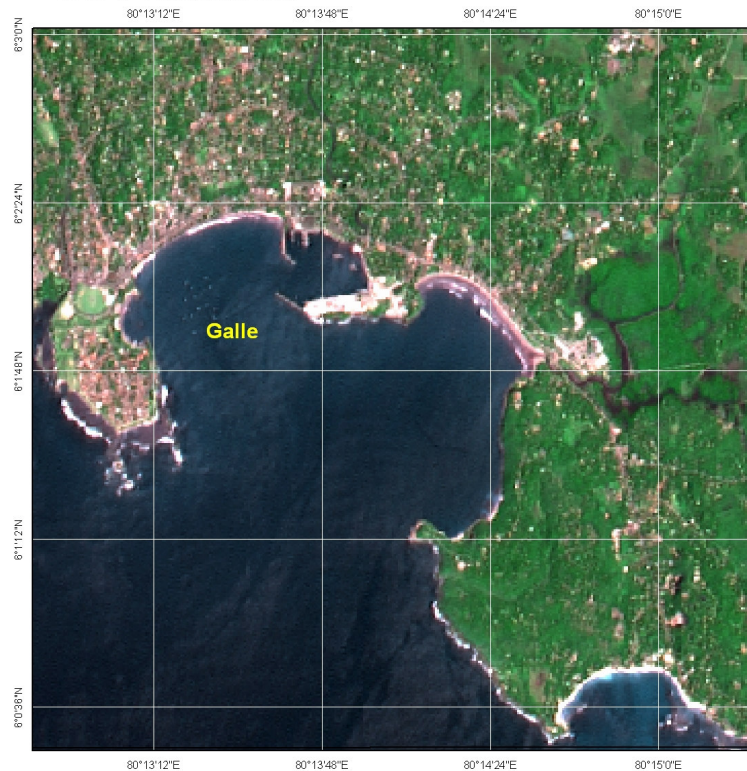
Datum : WGS 84
Projection : UTM 44

Data sources :
Reference image : SPOT 4 natural colour (10 m)
14 February 2000
© CNES 2000 : distribution Spot Image
Crisis image : SPOT 4 natural colour (10 m)
12 January 2005
© CNES 2005 : distribution Spot Image

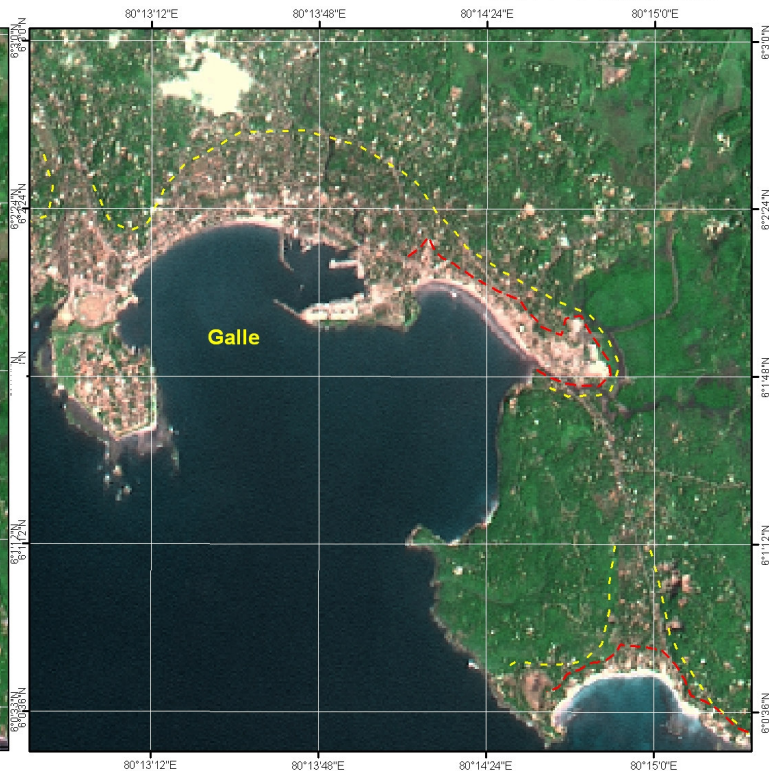
Scale : 1/25 000 for A3 prints
Map created 12 January 2005 by SERTIT.
© SERTIT 2005

sertit@sertit.u-strasbg.fr
<http://sertit.u-strasbg.fr/>

SPOT 4 - 14 February 2000



SPOT 4 - 12 January 2005



--- Probably highly affected areas
--- Possibly affected areas



Some statistics on the 214 Tsunami Maps (55 funded by Respond) made by partners during the first 4 weeks after the event:

Maps by Area of Interest:	No.	%
Overview	8	3.8%
Maldives	4	1.9%
India	27	12.7%
Thailand	8	3.8%
Indonesia	100	46.9%
Myanmar	8	3.8%
Sri Lanka	57	26.8%
Africa	1	0.5%
Total	213	100.0%
(61 of Banda Aceh)		28.6%

By main data source:	No.	%
ASAR	3	1.4%
Meris	1	0.5%
IKONOS	26	12.2%
IRS	10	4.7%
Landsat	34	16.0%
Landscan Pop	7	3.3%
MODIS	1	0.5%
Quickbird	29	13.6%
SPOT	78	36.6%
SRTM	9	4.2%
Radarsat	6	2.8%
Vegetation	2	0.9%
DMC	1	0.5%
Other	6	2.8%

Link between Respond and the International Charter: "Space & Major Disasters"

- ✓ The charter is an operational mechanism which delivers space imagery to civil protection agencies, emergency & rescue services and to signatories during natural **emergency situations** (it remains needed to generate the appropriate VA/Mapping products);
- ✓ **Respond** is a relevant framework for making use of the Charter for operational end-to-end crisis mapping solutions (**VA services**), especially for situations outside of Europe.

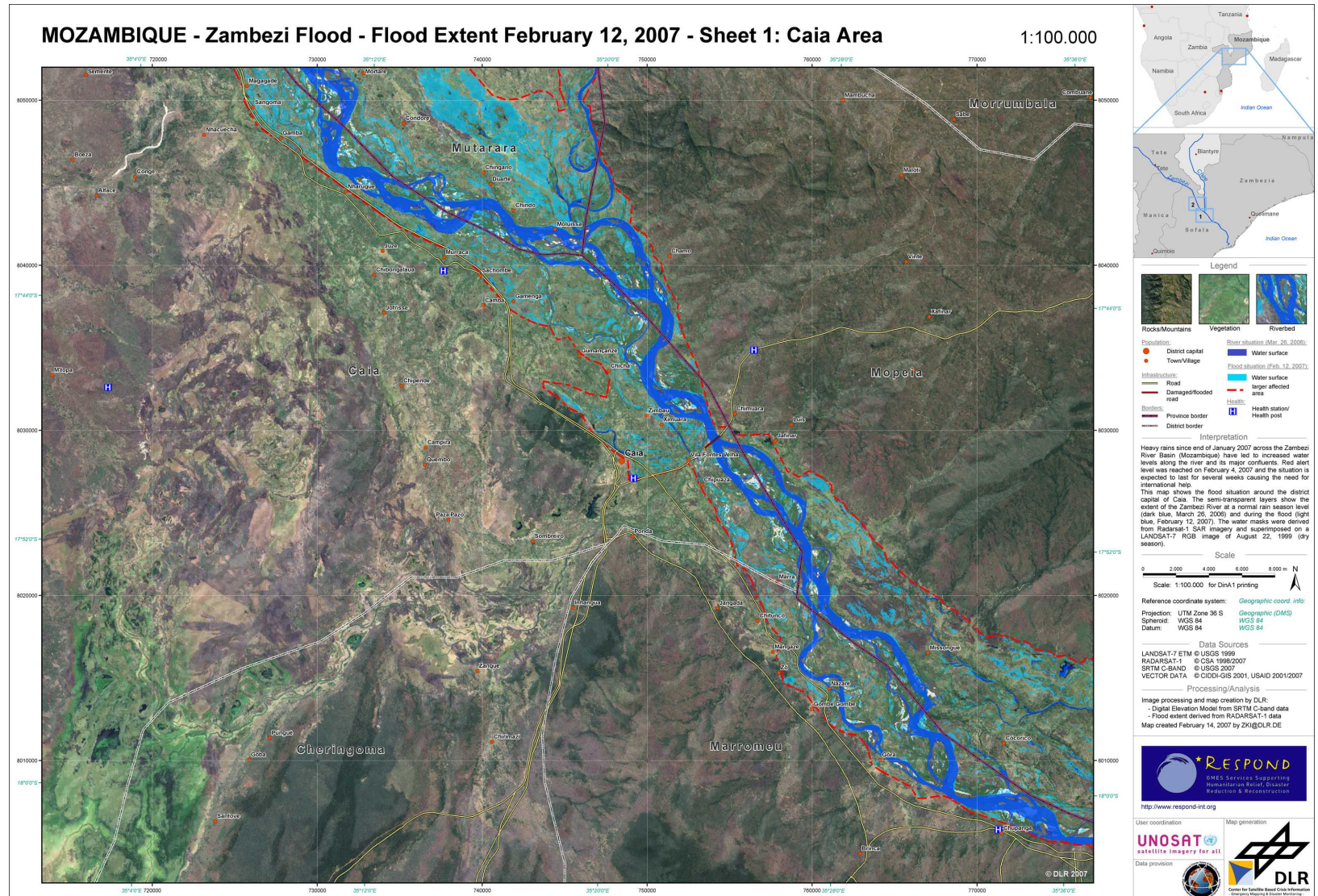


2007 Mozambique Flooding

- A few days ago, **Respond** was called upon to provide satellite mapping, following a major flood in Mozambique...
 - The Charter was activated by the WFP, with UNOSAT support, and satellites were tasked to provide imagery;
 - The first maps (based on existing (pre-disaster) and newly acquired data) have been produced by DLR-ZKI;
 - Further satellite-derived maps are currently being prepared;
 - The radar and optical maps show the flood extent and the effect on the local transport network;
 - **Respond** maps are being used by the UN and national disaster response teams and will be available to NGOs in the field.



Mozambique Flooding 14 Feb. 2007: An example of a Map produced by Respond Consortium members.

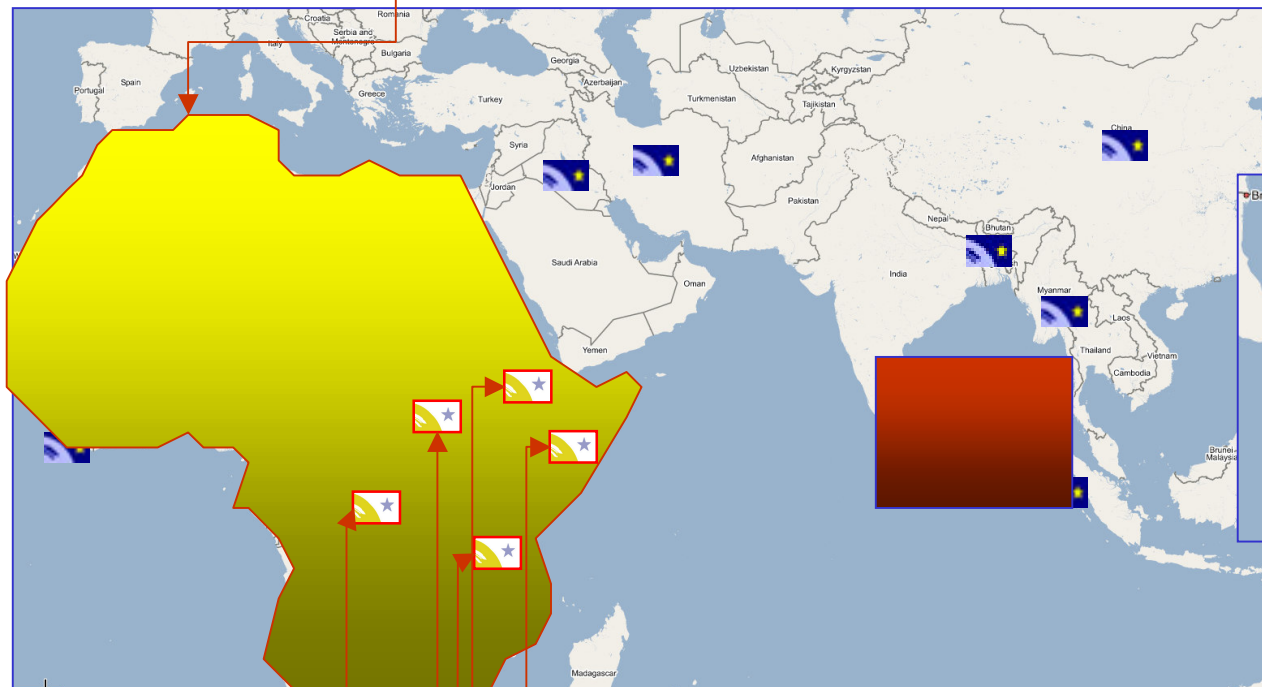


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Respond – Some of the services in the pipeline for 2007 and beyond...

Web Map Layers for Africa



Development Planning

Logistics Maps

Refugee / IDP
+ Field Support

Land Cover
Mapping

Landslide
Vulnerability

+ Crisis & Damage Mapping – wherever it occurs
+ Support to Food security and Health Actions

EO Humanitarian Mapping - Conclusions:

- **Respond** approach is GMES Global satellite mapping in action:
 - Satellites ably demonstrated as a credible tool for rapid mapping and damage assessment;
 - Link with International Charter Space and Major Disasters is key;
 - Real benefits to local people;
 - Bringing together major European players, with capacity to provide a useful service, worldwide;
- **Respond** partners continue to have roles in the tsunami and earthquake reconstruction, as well as in many other development areas.



The Respond Experience:

- Bringing the **Respond** partners and users together has been a challenge:
 - ↳ The users are a diverse group of charities, international organisations and government departments;
 - ↳ They have a real need for geographic information, but no interest whatsoever in satellites!
 - ↳ Furthermore, some have a mistrust of commercial/industrial interests.
- But we have learned and succeeded, to provide vital emergency mapping to crisis response and development teams, worldwide.
- **Respond** has up to now been active in **13 humanitarian crisis events**, 11 of which have coincided with charter activations.
- More than **150 different map sheets** have been delivered so far.



Long-term Respond vision:

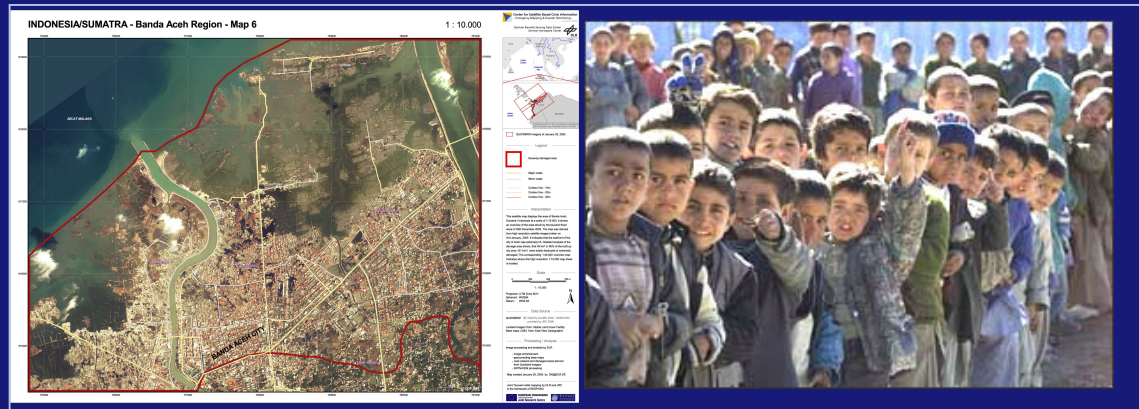
In 5 years time:

- The Humanitarian and Development Aid community will have **guaranteed** access to global mapping from European suppliers;
- The community will have access to an archive of detailed **base mapping, imagery and thematic mapping** for use in emergency situations;
- The community will have access to **rapid assessment maps** and information **for every crisis**; and
- Using maps and imagery will be as **familiar** and **routine** as using a word processor.



RESPOND
HUMANITARIAN
GLOBAL MAPPING SERVICES

★ GMES in Humanitarian and Development Aid: Respond



Thank you for listening!