Outcomes from the meeting of the International Working Group on Satellite based Emergency Mapping (IWG-SEM)

Place: Group on Earth Observations (GEO), Geneva, Switzerland

Dates: 15-16.October.2012

List of participating organizations (in alphabetical order):

DLR-ZKI	Stephan Voigt, Tobias Schneiderhan
GEO	Barbara Ryan, Francesco Gaetani
ITHACA	Fabio Giulio Tonolo, Andrea Ajmar
JRC	Jan Kucera, Marco Broglia
NASA	Stuart Frye (remotely via WebEx)
National Geomatics Center of China (NGCC)	Xiuli Zhu, Zhou Zhiwu, Ran Li (remotely via WebEx)
OGC	Herve Caumont (remotely via WebEx)
SERVIR	Nate Smith (remotely via WebEx)
UNOSAT	Wendi Pedersen, Harry Kendall
USGS	Brenda Jones

1. Presentations given during the meeting

Following presentations were given during the meeting.

Presentation Title	Presenter
	Brenda Jones
	Wendi Pedersen
	Harry Kendal
GIO-EMS, examples of concurrent emergency mapping exercises	Marco Broglia, Jan Kucera
Architecture Implementation Pilot-5: Disasters Management WG	Herve Caumont
Caribbean Satellite Disaster Pilot: Accomplishments and Program Planning Status	Stuart Frye
	Nate Smith
Disaster Atlas of Wenchuan Earthquake-Design and Production	Xiuli Zhu, Zhou Zhiwu, Ran Li

2. Topics discussed during the meeting

2.1. Sharing of the information about the Emergency Mapping Activation

This was identified as one of the most urgent item to work on. Through discussion, the answers of the following questions were elaborated.

a. Why to share? Being informed about the partners' Emergency Mapping Activation will possibly help to minimize the work duplication (in the case the duplication is not desirable) and it will possibly allow to perform Collaborative Mapping if this is in merit of the respective Authorized Users or/and individual mapping tasks. Furthermore

sharing the Activation Metadata can help to encourage collaborative satellite tasking through Data Procurement Mechanisms.

b. When to share? Ideally, the Activation Metadata should be always shared unless there are special restrictions placed on the Mapping Products (security reasons etc.) Even in the case of small Emergency Mapping Activation, it is always useful to inform the Emergency Mapping community. The focus is, however, on large scale events.
c. What to share? The list of Activation Metadata was compiled. The Activation Metadata including their brief description is given in Table 2.
d. How to share? It was concluded that a lightweight format that enables automated harvesting of Activation Metadata is necessary. The xml-based OGC-compatible formats (GeoRSS and kml) were agreed to be the most appropriate. These formats allow easy push/pull of the information from/to Emergency Mapping Organisations' geo-portals and other platforms. GDACS was recognized as good example of collaborative tool through which the Activation Metadata can be shared and (if possible and desirable) moderated.

2.2. Code of conduct

It was agreed that a basic code of conduct of IWG-SEM partners should be adopted. The IWG-SEM partners should encourage information sharing. They should regularly consult the partners' websites and also try to implement the Activation Metadata sharing via xml-based formats (see point 2.1.d). Whenever necessary, the individual communication and/or mapping harmonization effort is encouraged. If one of the partners feels the need for ad-hoc information exchange via teleconference (especially in the case of mapping of large scale disasters), the chair of the IWG-SEM will provide support for this communication on the best effort bases.

2.3. Mapping guidelines

It was agreed that the group should start to work on development of the Emergency Mapping guidelines. The aim of the guidelines is to help to implement an effective exchange and harmonisation of information and thus improve possibilities for cooperation amongst involved Emergency Mapping Organisations (especially in the very first phase of a disaster event) by harmonizing the mapping procedures and thematic content across involved Emergency Mapping Organisations. This would allow easier exchange, merge and quality check of the layers generated by more than one Emergency Mapping Organisation with the final goal to facilitate the End Users in understanding/interpreting products related to the same event and produced by different services. The guidelines should cover the code of conduct, the information exchange/cooperation approach, the common basic procedures of Emergency Mapping, the description of uncertainty model and the way of uncertainty communication, definition of the confidence level and Emergency Mapping vocabulary. With respect to this very last point of a common terminology, the NASA's Semantic Web for Earth and Environmental Terminology – SWEET could be used as a starting point or an example.

For the thematic part of the guidelines, the group will start to develop these guidelines first for floods because they are the most frequent disaster type worldwide. The guidelines for earthquakes should follow. These guidelines should take into account the existing thematically-related material developed by respective initiatives (for example Global Flood Monitoring).

3. Next Meetings

ITHACA offered to host the next meeting in Torino 10-11.4. 2013.

4. Chair Rotation

It was agreed that JRC will continue to chair the group until next meeting. The chair should be then entrusted to another IWG-SEM member.

5. Near future actions

5.1. Background documents

All members of the group will send (via email or ftp) the background documents relevant to points 2.1, 2.2, 2.3. JRC will create document library for storage. The document library will also contain other documents relevant to the group (presentation, minutes of the meetings etc.). The document collection should be ready by 7.11 (next teleconference).

5.2. Website of IWG-SEM

JRC will prepare the website for IWG-SEM group under GDACS. The site should have public and password protected area. The first version of the website should be ready before 7.11 (next teleconference) to allow members to review it.

5.3. Activation Metadata review

JRC will work on the Table 2 to prepare the complete first version of the Activation Metadata and will send it for review before 7.11 (next teleconference).

5.4. GeoRSS (or kml) prototype.

JRC, UNOSAT, DLR and ITHACA will together explore the possibility of xml-based OGC-compatible formats (see 2.1.d).The first prototype which should include Activation Metadata (Table 2) should be ready by 5.12 (next-next teleconference).

5.5. Extending the group

The new potential members (Emergency Mapping Organisations) will be contacted to see if they are interested in joining the group. These members should have the same status as current members of the group, e.g. should be non-private institutions (for example organizations affiliated with university, research organisations, government agencies, international intuitions). In the case of their interest, they will be officially invited. By the end of November USGS will contact the potential members and JRC will eventually send the official invitation.

5.6. Mailing lists

JRC will set up 2 mailing lists: the first one will include active members of the group and those interested to follow closely the activities, the second one will include those actively working in the group. JRC will also explore the possibility of having these mailing lists with neutral domain by the end of November.

5.7. Recommendations

The JRC will send the members of the active mailing list the Recommendations for review by 26.10. so that it can be discussed during TC on 7.11.

5.8. Next meeting

ITHACA confirmed they will host the next meeting on 10-11.4.2013 in Torino. Other members of the group will confirm their availability by the end of November.

Table 1 Common vocabulary (terms of reference)

Activation Metadata	The metadata information describing the important details of the disaster event (for example the type of event, date of event, spatial extends etc.), they should be provided by the Emergency Mapping Organisation. They are crucial in the initial phase to enable an effective cooperation.
Analysis Layer	The information derived from satellite or aerial imagery separated in different, consistent digital GIS layers (e.g. street net, points of interest, disaster extent, damage assessment,…)
Authorized User	The organization with the right to trigger Data Procurement Mechanism and Emergency Mapping Activation for the disaster.
Collaborative Mapping	Creating of maps for the same disaster by more than one Emergency Mapping Organisation, either in separate lines or in a commonly coordinated and harmonized way (by dispatching the job by AOI, analysis layer, time of engagement,…)..
Data Procurement Mechanism	The mechanism through which the imagery are acquired (for example International Charter, Sentinel Asia, GSC-DA GIO-EMS etc.)
Emergency Mapping	Creation of Mapping Products/value adding based on satellite or aerial imagery dedicated to emergency management and response..
Emergency Mapping Activation	The value adding activity with the aim of performing Emergency Mapping using satellite-based or aerial imagery as the main source of data. The Emergency Mapping Activation is usually triggered by the Authorized Users before (in the case of reliable early warning) , during and after the disaster.
Emergency Mapping Organisation	The organization with the capacity to perform Emergency Mapping .and capability to perform Emergency Mapping Also called: “Value Adder”, “Value Adding Company”, “Rapid Mapping Entity”.
End User	The organisation using the Mapping Products for their needs, typically related to disaster management or humanitarian crisis.
Mapping Product alternatives: “emergency response product” (Safer), “product” (GIO-EMS, DLR-ZKI), “image product” (International	The geographic digital datasets and ready-to-print layers and/or maps containing the information about disaster extend, damage extent, damage grade complemented with conventional map elements. Also called: “Emergency Response Product” (SAFER),

Charter), “cartographic products “ (SERTIT),	“Product” (GIO-EMS, DLR-ZKI), “Image Product” (International Charter), “Cartographic Product“ (SERTIT),
Product Metadata	Information associated with a specific Mapping Product, describing the content, specifications and characteristics (ISO, INSPIRE).

Table 2 Activation Metadata description.

Field	Priority	Explanation	Notes
Type of event	Mandatory	Type of natural or humanitarian disaster. The use of the following list (following glide specs) is encouraged: flood, fire…., other	
Date of event	Mandatory	Date of the event as precisely as possible. Whenever possible use the information coming from the authorities (civil protections) at the first place, the online media and reports as second. If possible specify also time in local time.	
Expected observation (assessment) period	Medium		For pre-disaster, for long lasting events (floods),
Area of Interest (point or area) specified by coordinates	Mandatory		
GLIDE number	Medium		
Purpose of the map (descriptive)	Low		To estimate the loss in agricultural land.
Content of the map	Mandatory		What layers should be in.
End User/ Requestor, Requesting agency	Mandatory		
Organizational framework (local, national, inter., NGOs, UN, commercial, private,	Mandatory		
Dedicated mechanism (	Mandatory		

Int. Charter, GIO-EMS, Sent. Asia,)			
Point of contact (if possible)	Low, Mandatory if collaborative effort needed		How to fill it? What to put it?
Request assistance in mapping (YES/NO)	Mandatory		