Next steps in “Enhancing technical and procedural cooperation in satellite-based emergency mapping at global scale”

Recognising the fast and improved availability of satellite imagery for disaster response purposes today and taking into consideration the increasing number of involved actors, the community of satellite-based emergency mapping takes a next step towards improved cooperation. Especially during extreme disaster situations, when individual mapping agencies/centres may be overwhelmed with data volumes and processing requirements improved cooperation and information schemes shall allow an even better global synergy in space based emergency mapping.

The Hohenkammer Workshop

During a workshop held at Schloss Hohenkammer (near Munich, Germany) on September 19th/20th 2011, 24 international experts discussed possibilities to improve technical and procedural cooperation in the domain of satellite based emergency mapping at global scale. Representatives came from the following institutions: EC/GMES Bureau (EU), EC/JRC (EU), ESA, GEO-Secretariat, ICIMOD (Nepal), JAXA/AIT/Sentinel Asia (Japan), ICF International/SERVIR, NASRDA (Nigeria), RCMRD (Kenya), SERTIT (France), UN Cartographic Section, UN Logistics Base, UNOOSA/UN-SPIDER, USGS (USA) and DLR (Germany). The participants intensively shared their experiences in the field of rapid crisis and emergency mapping and identified key actions and challenges for improving the cooperation among the different mechanisms and national/international actors. During two working group sessions ideas on technical aspects of collaborative emergency mapping as well as on global procedural concepts were developed. As the participants considered a continuation of the dialog as very important, it was decided to initiate an “International Working Group on the use of satellite data for emergency mapping”. So far, no fixed frame, work statement or speaker/chair was established yet. The next meeting of the stakeholders and to further elaborate on the topic is planned to be held in March/April 2012. The meeting will be hosted by the Joint Research Centre of the European Commission in Ispra (Italy) and the working group will target at deepening the discussions and will to start working on the actions identified at Hohenkammer..

Main findings and results

During the working sessions of the meeting first recommendations as well as issues/challenges to be worked upon in the future were identified. The discussions of the summary session of the workshop were guided by the emergency mapping cycle, spanning from mobilization, data acquisition and pre-processing/analysis/map generation to dissemination aspects. In a following plenary session the identified topics and points for improved cooperation were gathered and grouped according to whether they could be addressed by the group members directly (“actions”), whether third parties/organisations were to be involved (“recommendations”) or whether currently no direct addressee could be identified (“issues/challenges”). Generally, it can be said, that topics like a common communication tool or platform (functionality of a “virtual OSOCC”), the harmonized cooperation/escalation between mechanisms, the request for sharing of information on satellite data availability and prediction of acquisition and delivery times were points raised at many different occasions of the discussions. Furthermore, the idea to generate

common standard operating procedures (incl. common guidelines and legends) as well as to set in place a common quality labelling and joint collaborative validation of mapping results were mentioned and discussed at various times. Finally, the need to better share raster and vector data, the need to provide the respective copyrights and licenses and to possibly even span the whole disaster cycle with data and information products were important elements of the intensive dialogs and presentations in the working groups and plenary sessions.

Next steps

As the Hohenkammer workshop can be considered as one step towards improving global cooperation in satellite based emergency mapping it was decided to continue the dialog and process, in order to take the ideas further and to allow the development of a common understanding of the stakeholders involved. The overall activity of enhancing global cooperation in satellite based emergency mapping understood to be a bottom up approach and will depend on the readiness and willingness of all involved actors to jointly develop a cooperation scheme and put it into action. Of course, all active stakeholders in the domain are highly welcome to join this process and the working group activity.

As the next steps, the following activities were identified:

- Sharing of the main ideas derived from the Hohenkammer meeting among the participants and possibly with interested stakeholders that could not attend the meeting (Action: DLR)
- Convening the next meeting of the working group at the JRC in Ispra / Italy (Action: JRC)
- Start formulating a document of recommendations for global cooperation procedures (Action: USGS, with support of the working group)
- Joint work on and adoption of the resulting actions of the working group and continued formulation of the recommendations during the March / April 2012 meeting.
- Sharing of the recommendations document with relevant mechanism and global political frameworks like International Charter, GEO, UN etc….

In this annexes A and B the main topics, findings and recommendations of the workshop are listed. Redundancy and double naming is possible as the lists were compiled from the working group presentations and from the summary session discussions during the last day of the workshop. Thus, the listings below should be considered as aggregation of relevant topics for “enhancing global cooperation”. It is mandatory to further elaborate and share these points with the community and cooperating mechanisms during future sessions of the working group and through other activities.

Annex A - Working Groups (parallel sessions)

Key tools and actions identified by the working group on "Technical aspects of collaborative emergency mapping":

- A common platform for information exchange ("Virtual OSOCC") including map products, coordinates and contacts, etc. to be established
- Rules of engagement e.g. criteria for value adders, project managers, etc. to be developed
- Best practices to be identified and documented for inclusion into common "guidelines"
- A quality labelling approach at international level, building on existing mechanisms should be developed
- A more targeted needs assessment should be carried out amongst different user levels in order to facilitate the understanding of the exact information required and to better refine product definition. Existing findings/reports of needs assessment to be shared among relevant stakeholders
- A set of baseline data are to be defined and mechanisms to provide and share such baseline data are to be put in place
- (A) technical working group(s) to be established to commence work on above action areas

Findings of the working group on "Global procedural issues and concepts":

- No "one size fits all" solution to global-level consultation/coordination
- There is a need to avoid confusion over system activation at the local level: let local authorities know what they can activate, who will activate, when they can activate, and how they can activate; a single national focal point for all mechanisms is desirable, to help existing mechanisms function more effectively in response to a disaster
- It was the consensus that broader licensing of (satellite) data can be helpful to assist a wider range of qualified users in response to a major disaster; recognized as a shared view (noting that commercial providers may not share this view).
- Communications in real time (e.g. platform) among mechanisms would help avoid duplication of efforts and user community confusion.
- User feedback is essential, not mechanism-by-mechanism, but altogether, helping mechanisms to improve macro-level efficiency. User feedback should occur to both/all mechanisms simultaneously, to avoid inconsistency and user frustration.
- Differing levels of capacity among supranational, national, and local users need to be addressed in a complementary way by data and service providers.

Annex B - Actions/Recommendations/Challenges

"Actions" derived during the plenary summary session (activities which were considered to be within the scope of the workshop participants and the international working group):

- General information and communication platform (similar to virtual OSOCC) to exchange information (e.g. who has been activated; who is in the process of doing value adding)
- Develop best practice guidelines, standard operating procedures (SOP) and collaborative validation approaches to ensure a high quality of products - Development of common legends to avoid user confusion when using products from different providers/mapping centres
- Build further actions and work on what already exists. For that purpose a status quo analysis based on a survey of existing material and/or a questionnaire was proposed. In addition, reports (e.g. on user requirements) should be shared among service providers.
- Consideration of technical aspects of dissemination to improve cooperative mapping activities
- Provide information on the proper context of data generated and uncertainties of the analyses to enable the right use of products by the end user
- Development of a framework for user feedback and analysis of user requirements to adjust services to user needs
- Consider the development of a quality label as an indicator of the reliability of products and/or service providers to the benefit of users
- Promote ground data integration
- Joint emergency mapping exercises as a way to improve workflows and to learn from one another (e.g. from users, other analysis/mapping centres)
- Development of product portfolios to guide users on the options and limitations of satellite-based emergency products
- Discuss whether a GEO task could serve as a framework to promote the work of the working group in future

"*Recommendations*" derived during the plenary summary session (to be suggested and possibly recommended to mechanisms, agencies and third parties also involved in the topic):

- Definition of the community and main involved actors (who has what role)
- Promote involvement of regional/national Centres
- User guidance to increase benefits of satellite-based products
- User/Provider interaction
- How many acquisitions are needed for an appropriate response to disaster events? In which cases is a certain redundancy desirable/necessary/unnecessary?
- Promote further information sharing between organizations and mechanisms

"*Issues/Challenges*" identified during the plenary summary session:

- Avoid confusion about different mechanisms
- Double activations / parallel activities
- Escalating systems among mechanisms

- Tasking conflicts
- Transparent/shared acquisition plans, tasking priorities
- Prediction and announcement of delivery times
- Data licensing and copyrights
- Provision of archive data
- Support for the full cycle of disaster management (prevention/mitigation, response, recovery)
- 24/7 availability of service providers
- Fusion of parallel analyses, which will probably only be possible in the aftermath of a disaster due to time-constraints
- Collaboration between researchers and operational services
- Sharing of feedback (multi-mechanism)
- Institutional aspects
- Access to databases and gazetteers: place names and coordinates

Annex C - Workshop participants

Name	Organisation
Robert Backhaus	UNOOSA / UN-SPIDER
Marco Broglia	European Commission - Joint Research Centre (JRC)
Stephen Clandillon	SERTIT - Université de Strasbourg
Guillaume Criloux	UN Cartographic Section
Lorant Czaran	UNOOSA / UN-SPIDER
Jens Danzeglocke	German Aerospace Center – (DLR) – Space Administration
Francesco Gaetani	Group on Earth Observations (GEO)
Ahmad Halilu	National Space Research and Development Agency (NASRDA)
Stella Hubert	German Aerospace Center – (DLR) – ZKI
Hervé Jeanjean	EC - GMES Bureau
Brenda Jones	US Geological Survey (USGS)
Simon Jutz	European Space Agency (ESA)
Erick Khamala	Reg. Centre for Mapping of Resources for Development (RCMRD)
Jan Kucera	European Commission - Joint Research Centre (JRC)
Harald Mehl	German Aerospace Center – (DLR) – ZKI
Mohamed Mohamed	United Nations Logistics Base (UNLB)
Masahiko Nagai	Geoinformatics Center, Asian Institue of Technology (AIT/Jaxa)
Tobias Schneiderhan	German Aerospace Center – (DLR) – ZKI
Basanta Shrestha	Int. Centre for Integrated Mountain Development (ICIMOD)
Nate Smith	ICF International
Günter Strunz	German Aerospace Center – (DLR) – ZKI.
Timothy Stryker	US Geological Survey (USGS)
Jörg Szarzynski	UNOOSA / UN-SPIDER; as of Nov., 1st 2011 @ UN University
Stefan Voigt	German Aerospace Center – (DLR) – ZKI