International Working Group on

Satellite-based Emergency Mapping (IWG-SEM)

Minutes of the 2014 fall meeting held on November 25/26, 2014 hosted by DLR, Germany

Participants

	First Name	Last Name	Organization
1	Alexander	Mager	DLR
2	Stefan	Plattner	DLR
3	Tobias	Schneiderhan	DLR
4	Stefan	Voigt	DLR
5	Hendrik	Zwenzner	DLR
6	Benjamin	Fismer	DLR Intern, Observer
7	Peter	Zeil	EC-ENTR (via webconf.)
8	Fabio	Giulio Tonolo	ITHACA (via webconf.)
9	Manzul	Hazarika	AIT/Jaxa (via webconf.)
10	Jan	Kucera	EC-JRC
11	Annett	Wania	EC-JRC
12	Marco	Broglia	EC-JRC (via webconf.)
13	Stephen	Clandillon	SERTIT
14	Lorant	Czaran	UN-SPIDER
15	Antje	Hecheltjen	UN-SPIDER - (via webconf.)
16	Luc	St-Pierre	UN-SPIDER
17	Brenda	Jones	USGS (via webconf.)
18	Keiko	Seito	World Bank (via webconf.)
19	Guillermo	Toyos	World Bank (via webconf.)

Day 1 – First Session

- **Introduction**
  - Tour de table & Introduction of agenda
  - DLR: Update on website: Link has been shifted to http://www.un-spider.org/network/iwg-sem. GDACS-website to be deleted. Link on GDACS page will remain. UN-SPIDER: UN-Spider portal will be hosted externally at 3rd party cloud for technology update / easier access to collaboration/ etc.

- **Update on GeoRSS / Emergency Mapping Coordination activities**
  - JRC: Introduction and update on situation. Two types of feeds will be implemented: "GeoRSS" with basic and initial information on mapping activation. Further feeds to contain more technical details like AOIs, possibly satellite footprints, etc. Content and format of first feed has been developed and confirmed during several recent telecons.
  - Detailed presentation and discussion of items, one by one
    - SERTIT suggests to change "affected area" to "affected areas" to accommodate activations that have more than one area of interest → ok
    - Field "Activation GeoRSS" → UN-SPIDER points out the importance to keep an URL-link
    - ITHACA: Need to discuss audience for GeoRSS. General audience or IWG-SEM? 2nd planned feeds supposedly more for IWG-SEM internal use and with more technical details etc.; Why not UTC only, but UTC and local time instead?
      - DLR: IWG-SEM is main audience for GeoRSS feed, not general public in the first place
      - JRC: Feed for all interested stakeholders, not only IWG-SEM
      - AIT: Myanmar meeting – many parties in Asia expressed interest to be informed early about a starting emergency mapping activities. Information gap between start of activation and first products can well be overcome by such feeds.
    - UN-SPIDER: Glide number to be mandatory field and to be created by IWG-SEM members if necessary?
      - Too much effort at the time of initialization of activation
    - SERTIT: Encourages the group to start using the GeoRSS feed as is and learn/adapt while using it.
  - JRC: General introduction about feed(s) for sharing/coordination of activation details. GeoRSS capability limited with regard to amount of metadata, number of AOIs etc. This feed/tool is meant to ease cooperation within rapid mapping service provider community. Not for general public. UN-SPIDER new web portal may support and include gathering, aggregation and visualization features. As main format a set of KML files is suggested.
    - DLR: KML good tool to start with. Every service provider can easily provide KMLs on intended AOIs and mapping types. This can be integrated into web portals for generating a common picture/overview.
    - UN-SPIDER: Agrees and suggests starting with a very simple visualization tool. Simple KML collection will do. What about Google crisis group technology?

- **Guidelines**

o DLR: Introduction and general status of guidelines. Next step is to add thematic sections without aiming to provide an "in-depth manual". ITHACA, EC, DFO, DLR and SERTIT have been working on and advancing the "flood section" as first and model-type of thematic section.

o EC: Need to address expert level on client side as well as thinking about guidelines for expert service provider's side. What does the user really need?

- Chapter 1: "Scope" (incl. potential and limits)
  - High resolution data to be included if available since users want localized high resolution data.
  - Link with early warning systems?
- Chapter 2: "Reference mapping"
  - Risk information on reference map? Where to get this information from? You need to work on exposure and vulnerability of an area before an event. Not possible once disaster struck.
- Chapter 3: "extent & impact mapping"
  - Discussion on wording: Delineation, grading, extent, …
  - No way of acquiring information on critical infrastructure, land use etc. shortly after disaster. Needs to be done in advance.
- Chapter 4: "Monitoring the situation"
  - no major discussion on this chapter
- Chapter 5: "Risk and recovery Mapping"
  - Hazard & vulnerability mapping to be included? EC advocates to keep it. Hazard & vulnerability mapping is a task demanded by EC member states.

DISCUSSION
- UN-SPIDER: Need to share vulnerability & pre-event data. Guidelines should include lists of available reference data.
- SERTIT: Need to include introduction and scope for flood section as first chapter. To be written after completion of the document.
- UN-SPIDER/SERTIT: Guidelines should be used to promote and harmonize certain terminology and definitions. E.g. the term "disaster extent" can be defined and alternative terms could be defined.
- ITHACA: The glossary section at the end of the document should be updated according to the terminology that will be agreed and adopted for the event specific section (the current glossary was a simple list of different terms adopted by the main Emergency Mapping organizations and was never refined). General part of the guidelines should be updated accordingly..
- EC: Need to clarify what sort of map corresponds to what situation, since terminology might be common and known for most actors within the group, however, maybe not for all of them and certainly not for the end users of the emergency maps.
- How to wrap all the issues up to have a chapter that can be used as blueprint for other chapters? → Chapter headings are more or less finalized. DLR: Set up schedule for telecons and actions to finish flood section.
- AIT: Rapid mapping should focus on impact extent and infrastructure / population only. No vulnerability mapping etc. DLR: Damage information / grading needs to be included for earthquakes or hurricanes. For floods: mention problems and limitations however still keep the same chapters/headings.

- SERTIT: Grading is essential for flood mapping when considering areas under water and areas that might be / most likely have been flooded. In this case use terms like "potentially flooded" etc. to show grading related to confidence levels.
- UN-SPIDER: GEO data sharing to be looked at. Guidelines should provide information on available data → to be put it in the general section. It may be interesting to consider that references to specific datasets within the guidelines may be difficult to be kept updated. If initiatives like the UN-Spider knowledge portal regularly updates a list of geospatial reference datasets, it may be worth to reference mainly the key initiatives/links in the guidelines (and not the datasets themselves)**Action UN-SPIDER**: to use UN-Spider website information on refereed geo data to be compiled into Guidelines. Review of general part of Guidelines.
- Clarification needed for whom the guidelines are written und thus, which information needs to be included (Emergency Mappers and/or sophisticated end users,…)

- **Geospatial/satellite support for Post Disaster Needs Assessment (PDNA) / Damage and Loss Assessment (DaLA)**
  - Presentation by WB. Need for validation of remotely sensed assessment parameters that traditionally have been derived on the ground. Validation of geospatial data based impact assessment strongly needed. On the ground PDNA is time consuming and geospatial data could provide easier way to complete PDNA. Importance to cover entire area not just major urban or built-up areas. Only damage assessment is possible, not loss estimation directly. Binary approach to flood damages: if structure is inside flood extent it's supposedly damaged, it if's outside, it's not damaged → very coarse. Problems with flash floods. "Slow" onset floods much easier to predict etc.
    - DLR: Is there a general geospatial approach to do the PDNA?
      - WB: Yes, if a geospatial agency exists in the affected country. General approach: Overlay of disaster extent with population data / building footprints etc.
      - Concept of Geo-Node is being used
      - 3 phases: Humanitarian / PDNA / Recovery → Need to share data for all phases

    - UN-SPIDER:
      - There could be smart ways of validation using people on the ground if a good methodology is being used
      - There won't always be free data available
      - There are technical and institutional solutions for all the problems addressed by WB. Spider could help
    - JRC:
      - Do not start with housing sector but start with simpler things like agriculture where remote sensing provides reliable information and could provide data for huge areas. Manual is needed.
      - Copernicus EMS can help

    - DLR: First of all IWG-SEM should finish guidelines etc. before starting in-depth work on PDNA support. Conceptualize geospatial/satellite PDNA support, initiate validation projects, etc. . PDNA should have a well elaborated concept

and structure before starting to trigger different initiatives without an consolidated idea how to puzzle the pieces together.

▪ SERTIT: Questions figures provided by WB as the figures coming out of the WB/JRC/UNOSAT detailed in-field mapping showed much higher correspondence (Only 10% accuracy for satellite based mapping of destroyed buildings in Haiti). SERTIT as SP concerned about limitations on mapping funds for emergency phase, since careful mapping for recovery work / post-disaster monitoring etc. would require more funds and more in-depth analysis.

Day 1 – Second Session

- **Introduction**

- **GeoRSS**
  - Summary of morning's discussion
  - Discussion on tool that may digest KMLs from SPs on planned/actual Areas of Interest/Analysis and Mapping
    - ▪ Brainstorming on functionalities and design of tool
      - AOI
        - Upload/push KMLs to one joint place (FTP or CMS). Develop tools to harvest/read KMLs and visualize them. → Based on new UN-Spider website and its functionalities?
        - Take some past activation data from Haiyan (SERTIT and DLR) to try out and see how repository would work.
        - Naming convention for files needed and essential
        - Each organization produces 1 KML with all it's AOIs to dump at the repository. Archive copies or versioning and tracking/documentation of temporal development.
        - UN-spider based repository to be used for test cases.
      - Footprints of satellite data plus metadata →only feasible if at least semi-automatic compilation of respective KMLs is possible. One of the aims is to include non-charter data providers. KMLs on satellite foot print has lower priority than actual AOIs
      - Information on dissemination of products → should remain as (Geo)RSS, as more stable and not subject to frequent change.

- **Guidelines**
  - DLR summarizes up morning discussion
  - EC suggests to re-name the chapters to 1. Scope, 2. Reference mapping, 3. Extent & impact, 4. Monitoring the situation, 5. Information for Disaster Risk Reduction

- 1. Scope: Flood types, Remote sensing capabilities (scale, temporal), Early Warning System EWS
  - How to use EWS to improve emergency mapping, plan data acquisition, etc.
  - Potential and limits
- 2. Reference mapping: See ppt. Pre-event: Background map, normal water level, infrastructure. Tbd: Risk information
  - Reference Mapping or Reference Data?
  WB question on term "reference". → needs to include explanatory sentence saying where "reference" comes from and that it can mean different things to different actors.

- 3. Flood extent & impact: Flood extent = flood mask (whole area, detailed areas) / Impact = extent + critical infrastructure, agricultural land (-> LULC), mining sites, landmines,… / Hot spots
- 4. Monitoring the situations: Up-date on event / Rate of change (increase, decrease) / Hot spots changes
- 5. Information for DRR: Changes (pre-event – post-event)in LULC, infrastructure / Vulnerability (pre-condition, changes after the event) / Risk management: vulnerability hot spots per dimension (exposure, sensitivity, resilience)
  - "Possible contributions to DRR", written in "could/would"-style to indicate that the kind of information we provide can probably be used for DRR but that this is not core responsibility of the IWG-SEM
- Schedule:
  - Action Extended draft version of flood section of Guidelines: 1st December (EC, Peter Zeil)
  - Chapters until 8th December:
    - Scope (Action DFO, Rob Brakenridge/ EC, Peter Zeil)
    - Reference Mapping (Action DLR, Tobias Schneiderhan)
    - Extent & impact (Action SERTIT, Stephen Clandilon)
    - Monitoring (Action ITHACA, Fabio Giulio Tonolo)
    - DRR (Action EC, Peter Zeil)
      →Telecon 9th December (Action DLR, Stefan Voigt)
  - Version 02: 18th December (Action EC, Peter Zeil)
    → Review chapters from a user perspective until January 2015 (Action USGS, Brenda Jones and WB, Keiko Seito)

Keiko: Who's the end user / intended audience?

→Expert Producer's community to harmonize their work

Discussion on additional user involvement.

- **Geospatial PDNA / Damage and Loss Assessment (DaLA)**
  - Summary of morning's discussion by WB

- o Ideas on how to validate urban area/housing sector damage assessment? WB: Compare PDNA with remotely sensed data. More of a comparison than a validation. PDNA is not too accurate, on purpose.
    - SERTIT: Mapping for PDNA and Emergency mapping completely different things with different needs. No point in comparing the two. Emergency mapping aimed at immediate disaster response, Search and Rescue, etc. PDNA aims at more precise and in-depth assessment.
    - Discussion of example cases such as Haiti, Christchurch, etc.
    - WB very much interested in comparing remotely sensed data with own PDNA, to see what remote sensing can do and what it can't do. Overestimation/ Underestimation. WB offered to provide ground assessments for comparison purposes.
- o JRC: Where do we stand as European Copernicus program with regard to errors in emergency mapping products?
    - Floods: 80% thematic accuracy for optical data
    - Floods: 60% thematic accuracy for radar data (worst case?)
- o Former Exercises in the European RESPOND project assessed the accuracy of earthquake and flood mapping
- o DLR: PDNA workshop with variety of actors from mapping community could be organised for next years' IWG-SEM fall meeting.
- o WB: Access to Reports from the ESA/GMES "RESPOND" project would be appreciated

Day 2

	First Name	Last Name	Organization
1	Alexander	Mager	DLR
2	Tobias	Schneiderhan	DLR
3	Stefan	Voigt	DLR
4	Peter	Zeil	EC (via webconf.)
5	Fabio	Giulio Tonolo	ITHACA (via webconf.)
6	Manzul	Hazarika	AIT/Jaxa (via webconf.)
7	Jan	Kucera	JRC
8	Annett	Wania	JRC
9	Stephen	Clandillon	SERTIT
10	Lorant	Czaran	UN-SPIDER
11	Antje	Hecheltjen	UN-SPIDER (via webconf.)
12	Luc	St-Pierre	UN-SPIDER

- **Introduction and summary of meeting so far: DLR**

- **GeoRSS Presentation of final status and adoption**

Discussion on layout and access of GeoRSS/KMLs for online coordination of EM (location on website where to put specifications for GeoRSS etc.). Public area on website with UN-SPIDER to set up a new section dealing with technical matters and tools. Short introduction necessary. JRC to put up examples to get first experiences/tests. The aggregators and visualisation at JRC and UN-Spider should show the GeoRSS/KML feeds of suggested past 5 days' of global activities. **Action JRC**

  o **Jan Kucera** to share GeoRSS definitions on website

  o Next year: Set up viewer for feeds.

  o Discussion on KML: Attributes and formats of AOI have been finalized. Envisaged users: Experts, not general public. **Action JRC, Jan Kucera** to share definition and major details of KML attributes.

  o To be discussed: Merge AOIs to 1 KML per organization or provide 1 KML per AOI per organization? Naming convention?

    ▪ ITHACA: in favour of Merging. Easier to handle (especially in a rapid mapping context), better overview. It may be useful to agree on a colour/ zymology scheme for aggregating AOIs according to expected analysis/map types (reference, extent, etc…). Proposal of including planned type/category of sensor (SAR vs Optical, VHR vs HR) per AOI?   EC: Optional field..

    ▪ DLR: Contra merge. AOIs might be merged at later point in time based not only on SPs who map the areas but type of maps, type of analysis, …

  Next step: Continue working on KML at the next teleconferences. To be finalized before the next meeting (spring). Design of visualisation tool and file name convention to be focused on.

- **Guidelines – Discussion and adoption of flood section**

  o Summary of timetable for finalization of flood section. See Actions.

  o AIT: Limits of remote sensing to be included in the guidelines?

    ▪ First Chapter: Scope. Limits and potentials to be included.

- **Upcoming work / activities of IWG-SEM**

  o UN-SPIDER: Website, **Action all IWG-SEM members:** to check links and logos IWG-SEM website on member list on website (http://www.un-spider.org/network/iwg-sem). Any issue to be reported to chair.

    ▪ Forum vs. repository in login part of IWG-SEM website? Repository!

  o December telecon: Focus on flood section.

  o ISRSE 2015 in Berlin: Special Session on Emergency Mapping Mechanisms. Guidelines and other activities to be presented there by Chair.

  o Sendai WCDRR: Working session on ICT, EO and Robotics in disaster management, ca. 70 minutes.

  o Geospatial/satellite support for PNDA/DALA: important future topic for the working group. To be addressed in 2015.

- o Membership: Confirmed that WG addresses public and non-for-profit organisations.

- o **Action IWG Chair:** Crowd / VGI / Crisis Mappers to be invited to present their work at next meeting and talk about possible involvement. Humanitarian Open Street Map to be asked.

- o Fund raising for IWG-SEM activities?
    - ▪ Try to raise funds for specific events
    - ▪ Research/Service project for EO in PDNA and respective validation

- o Chairmanship Term Spring 2015 – Spring 2016: UN-SPIDER confirms readiness to take over the next term of chairmanship. No other candidates.

- o Next meeting – possible locations
    - ▪ UN-SPIDER suggested to have one of the next meetings back-to-back with UN-SPIDER events in Bonn/Beijing, Asia etc.
    - ▪ Bangkok possible location: AIT offers to host one of the next upcoming meetings.
    - ▪ Asian remote sensing conference in October in Philippines

- o IGW-SEM half-yearly meetings concept and structure: physical meeting seems to be more effective. Repetition of agenda items and continuation of the discussions respectively to allow different time-zones to participate/contribute seems to be interesting. Web conference access should be a standard tool for those who cannot participate physically. Regional/continental "nodes" for conference to be connected via video/web could be considered.

Actions Item	What	Who's Action	Completed by when
AI 1	Review of general part of Guidelines and use UN-Spider website information on refereed geo data to be compiled into Guidelines.	Action UN-SPIDER, Lorant Czaran:	January 15, 2014
AI 2	Extended draft version of flood section of Guidelines	EC, Peter Zeil	December 1st, 2014
AI 3	Formulation of flood section Chapter: **Scope**	DFO, Rob Brakenridge/ EC, Peter Zeil	December 8th 2014
AI 4	Formulation of flood section Chapter: **Reference Mapping**	DLR, Tobias Schneiderhan	December 8th 2014
AI 5	Formulation of flood section Chapter: **Extent & Impact**	SERTIT, Stephen Clandilon	December 8th 2014
AI 6	Formulation of flood section Chapter: **Monitoring**	ITHACA, Fabio Giulio Tonolo	December 8th 2014
AI 7	Formulation of flood section Chapter: **DRR**	EC, Peter Zeil	December 8th 2014
AI 8	Next Telecon mainly dedicated to floods section	IWG-SEM Chair	December 9th 2014
AI 9	Compilation of second extended draft	EC, Peter Zeil	December 18th 2014
AI 10	Review chapters from a user perspective	USGS, Brenda Jones and WB, Keiko Seito	January 15th, 2015
AI 11	Sharing of GeoRSS metatag structure and KML examples via IWG-SEM websites	JRC, Jan Kucera	December 9th, 2014
AI 12	Check your organisations link and logo on new IWG-SEM website at UN-SPIDER. Report issues to IWG-SEM Chair	All IWG-SEM members	As soon as possible.
AI 13	Crowd / VGI / Crisis Mappers to be invited to present at next meeting	IWG-SEM Chair	Next meeting