International Working Group on

Satellite-based Emergency Mapping (IWG-SEM)

Technical discussion group on GeoRSS

# Background

Emergency satellite mapping exercise consists roughly from the following steps: i) disaster to be mapped – area of interest, ii) ordering and acquisition of satellite data, iii) production of disaster maps and their publication. During each step, important spatial and non-spatial metadata are collected (for example polygon of area of interest, type of imagery platform, imagery footprint, image acquisition time, area of analysis, extent of the maps, link to the maps and other layers etc.). In IWG-SEM we agreed that it is very useful to share set of such metadata for better cooperation among emergency mapping entities especially during large disasters. Sharing of such information in automatic way will make the exercise more efficient, better structured and less confusing for the users of the emergency maps. GeoRSS appears to be a good solution for sharing such information.

# Why GeoRSS

The GeoRSS connects two important features together: RSS feeding and Geo information. RSS feed is simple and popular tool used to get updates on the topic of interest (news article, news from websites etc.). It is widely used by general public; the subscription to them is straightforward and they are easy to follow using popular software like Microsoft Outlook. Anybody without specialized knowledge can subscribe to them.

The Geo part of the feed allows attaching the coordinates to the information. This is very relevant to emergency mapping community; using that feature it is very easy to understand the spatial part of the information. GeoRSS can be displayed (for example) on GoogleMaps, in ArcGIS, QGIS and other software. Most importantly, GeoRSS feeds from several sources can be processed automatically by feed aggregators and displayed on the map in organized way.

GeoRSS is xml format and it is OGC compliant. GeoRSS can be used by general public, geomatic experts and automatic aggregators.

However, there are some limitations which should not be ignored. GeoRSS is simple format and cannot accommodate all the features we would like to have (for example one feed can be represented by only one geometric entity). Recently, we noticed some decrease of interest in using GeoRSS (for example new GoogleMap does not seem to support the import of them to their map making interface). There might be new formats which can replace GeoRSS in future.

# What we should do

We should look at at GeoRSS (but also on other tools if necessary) and see what kind of metadata can be placed in GeoRSS and “broadcasted”. If we manage to agree on the set of metadata, we should recommend them to the IWG-SEM members to use it in their feeding and also we should give advice on the best way to setup the feed and incorporate it in their working environment.

# Some examples

We started to use feeding in Copernicus Emergency Management Service (EMS) (emergency.copernicus.eu). We designed them by ourselves but we are open to follow the standards which this group recommends.

We have two types of feeds. The general feed contains location and short description of the Copernicus emergency activations. You can subscribe them here:

<http://emergency.copernicus.eu/mapping/activations-rush/feed> (EMS Rush Mode)

<http://emergency.copernicus.eu/mapping/list-of-activations-nonrush> (EMS Non-Rush Mode)

Then we setup the feed for each individual EMS activation which contains information about delivery of each emergency map. When subscribed, this allows monitoring of the evolution in map production. We would like to add also other information here (for example area of interest), but we prefer to wait a bit to see if some standards will be adopted by IWG-SEM. As an example you can subscribe the feed for activation on UK floods (http://emergency.copernicus.eu/mapping/list-of-components/EMSR069):

<http://emergency.copernicus.eu/mapping/list-of-components/EMSR069/feed>

and to see the feed on the google map:

<http://maps.google.com/?q=http://emergency.copernicus.eu/mapping/list-of-components/EMSR069/feed>

On the top of that we set up very simple feed automatic aggregator which shows the location of the emergency activation of several organization using their feeds (in this case Copernicus, DLR, Int. Charter, Map Action). We are happy to add more if the GeoRSS feed exist. This gives very quick overview on who is working where and on what. You can also filter them (for example for floods only). Please try it out yourself:

<http://emergency.copernicus.eu/mapping/georss-feeds-aggregated>

We would like to develop it further to accommodate also more detailed feeds on individual emergency mapping activations of several organizations, but for that we need to have agreed set of metadata. This group should help to develop them.

# Type of feeds

Based on our experience it seems to be most practical to have two types of feeds: feed for all activations and feed for individual activation.

# Feed for all activations

Feed for all activations will contain the basic metadata about activation. It serves to get basic information about the activation. It should be made available as soon as possible after the emergency mapping organization is activated to allow fast and near-real time information sharing.

Following elements should be contained in the feed.

|  |  |  |  |
| --- | --- | --- | --- |
| 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 and time of event (Local Time) | 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. Must be in local time |  |
| Event Description | Mandatory | Short description of the event taken from the activator and other sources (media etc). |  |
| Activation date and time (UTC) | Mandatory | Date and time of activation in UTC. |  |
| Activation Location (point) specified by coordinates | Mandatory | The point should be placed in the “middle” of the expected mapping exercise. This serves as a rough indicator for the location.  This field will not be visible on text part of the feed, it is used to display the location on the map. |  |
| Affected Countries | Mandatory | Name of the country(ies) which were affected. |  |
| Affected Area | Medium | Verbose description of the area within the country. |  |
| GLIDE number | Medium | If known, is should be used, otherwise it will be empty field. |  |
| Dedicated mechanism (  Int. Charter, EMS, Sent. Asia, ) | Mandatory | The name of the mechanism which was activated. |  |
| Links |  |  |  |
| Activation Page | Medium | Link to the activation where the other information and products are available. |  |
| Activation GeoRSS | Mandatory | Link to the “Feed for one activation”. The users can subscribe it to get information during the activation evolution. |  |

# Feed for individual activation

The feed for individual activation serves to provide detailed information related to one activation in near-real time. It serves for quick understanding which areas are covered, what kind of satellite imagery is requested/delivered and what kind of maps are produced.

It has three types of items:

1. Area of Interest. Shows planning of the satellite data and intended products.
2. Coverage of satellite data (shows the metadata about received satellite data)
3. Map coverage (shows metadata about the produced maps)
4. Area of Interest Items

|  |  |  |  |
| --- | --- | --- | --- |
| Field | Priority | Explanation | Notes |
| Area of Interest | Mandatory | Polygon which shows area which should be covered with the mapping exercise. This field will not be visible on text part of the feed, it is used to display the polygon on the map. |  |
| Name of AOI | Mandatory | Name of the aoi. It should be the name of the place (village, town, region) which is intended to be covered. |  |
| Planned Map types | Mandatory | It lists the type of maps which are intended to be produced (for example, Delineation). The list of the map types should be worked out (Copernicus is using Reference, Delineation and Grading). |  |
| Planned Satellite Data | Mandatory | List of the tasked satellite data to cover the AOI. |  |

1. Coverage of satellite data Items

|  |  |  |  |
| --- | --- | --- | --- |
| Field | Priority | Explanation | Notes |
| Data coverage | Mandatory | The polygon depicting the coverage with satellite data. This field will not be visible on text part of the feed, it is used to display the polygon on the map. |  |
| Sensor Type | Mandatory | Type of the sensor (Geo Eye, World View etc) |  |
| Resolution | Mandatory | Spatial resolution in meters. |  |
| Acquisition Date and Time (UTC) | Mandatory |  |  |
| Links |  |  |  |
| Link to the data in online catalogue | Low | If available include the link to the data in online metadata catalogue which includes quicklook. |  |

1. Map coverage Items

|  |  |  |  |
| --- | --- | --- | --- |
| Map coverage | Mandatory | The polygon depicting the map coverage. This field will not be visible on text part of the feed, it is used to display the polygon on the map. |  |
| Map name | Mandatory | The name of map. It should be the name of the place (village, town, region) which is covered by the map. It can (but not necessarily) correspond to “Name of AOI” from Area of Interest item. |  |
| Map Type | Mandatory | The map type which are was produced (for example, Delineation). The list of the map types should be worked out (Copernicus is using Reference, Delineation and Grading). |  |
| Map Scale | Mandatory | The scale of the map |  |
| Date and Time of Map Availability (UTC) | Medium | The date and time of map availability to the public. |  |
| Links |  |  |  |
| Map page | Medium | Link to the map page where it can be downloaded and where other map attributes can be obtained. |  |