

CEOS Working Group on Disasters Meeting # 9

13 – Joint session with International Working Group of the Satellite Emergency Mapping (IWG-SEM)

The International Working Group on Satellite-based Emergency Mapping (IWG-SEM)



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IWG-SEM

- **Voluntary group** of organizations involved in satellite-based emergency mapping.
- Founded in April **2012**
- **Monthly teleconferences** and **biannual meetings**
- **Yearly rotating chairmanship:** current chair Stephen Clandillon from Icube-SERTIT, University of Strasbourg, France (s.clandillon@unistra.fr)



UNITED NATIONS Office for Outer Space Affairs
UN-SPIDER KNOWLEDGE PORTAL
 Space-based information for Disaster Management and Emergency Response

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Network

IWG-SEM
 National Focal Points
 Regional Support Offices
 Global Earth Observation Partnership

International Working Group on Satellite based Emergency Mapping (IWG-SEM)

The International Working Group on Satellite-based Emergency Mapping (IWG-SEM) is a voluntary group of organizations involved in satellite based emergency mapping. It was established to improve cooperation, communication and professional standards among the global network of satellite based emergency mapping providers. The chairperson of the group is elected for a term of one year and is responsible for organizing the monthly telecons and bi-annual meetings. The current chair is from UNOOSA/ UN-SPIDER.

The group meets twice every year in person at venues arranged by meeting participants. These meetings are forums for reviewing what has been accomplished to date and to define the steps forward. The monthly regular teleconferences are held to monitor progress on actions and for discussions on particular matters of interest to the group.

Contact

For any inquiries to the chair, please contact czzaran@unooosa.org.

To send inquiries to the entire group, please use the contact form.

IWG-SEM members

ADPC
 AHA Center
 AIT
 AKDN-FOCUS
 CNES
 CU-Boulder
 DFO
 DLR
 EC-ECHO
 EC-GROW
 EC-JRC
 ESA
 GEO
 GWU
 HHI-SP
 HRW
 ICI/MOD
 ITHACA
 JAXA
 MoT/HydrMet
 NASA
 NASRDA
 NDRCC
 PDC
 RCMRD/SERVIR
 RECTAS
 RIT
 SERTIT
 SaBCh
 UMD
 UN Cartographic Section
 UNDSS
 UNITER/UNOSAT
 UNOCHA
 UNOOSA/UN-SPIDER
 UNU-EHS
 UN WFP
 USGS/EROS
 WVB

[Detailed list](#)

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- ADPC
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- CNES
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- DFO
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- EC-ECHO
- EC-GROW
- EC-JRC
- ESA
- GEO
- GWU
- HHI-SP
- HRW
- ICI/MOD
- ITHACA
- JAXA
- MoT/HydrMet
- NASA
- NASRDA
- NDRCC
- PDC
- RCMRD/SERVIR
- RECTAS
- RIT
- SERTIT
- SaBCh
- UMD
- UN Cartographic Section
- UNDSS
- UNITER/UNOSAT
- UNOCHA
- UNOOSA/UN-SPIDER
- UNU-EHS
- UN WFP
- USGS/EROS
- WVB

[Detailed list](#)

IWG-SEM - Vision and Mission

VISION

“Supporting disaster response by improving international cooperation in satellite based emergency mapping”

MISSION

“To establish best practices between operational satellite-based emergency mapping programs to stimulate communication and collaboration to include definition of map product generation guidelines, coordination of expertise and capacities, building of training curriculum, participation in common exercises, and **reviewing relevant technical standards and protocols**. To work with the appropriate organizations to define professional standards for emergency mapping.”

IWG-SEM - Activities

Emergency Mapping Guidelines

White Paper on Early Warning and Rapid Mapping

Operational tools / Standards

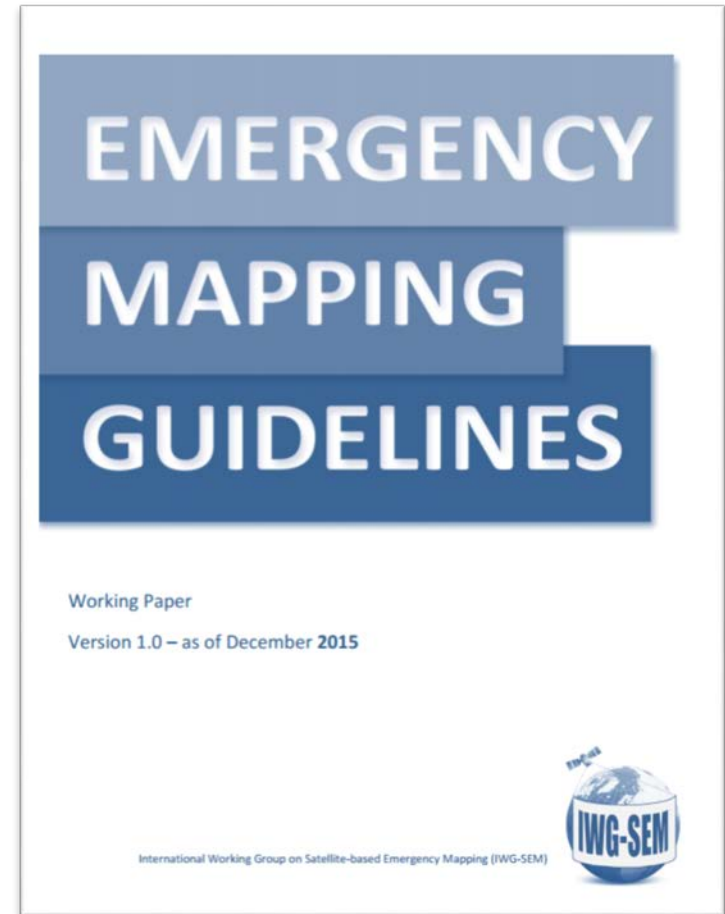
(GeoRSS Feed to automatically broadcast information about SEM activations)

2 physical meetings per year

Monthly telcos

Emergency Mapping Guidelines

- [On-line Working Paper](#)
- Define fundamental principles
- **Establish a procedure for interactions and sharing of data, analysis and mapping results**
- Organize mapping products, templates and dissemination policies
- Commit to assurance of capacity and qualification
- Prepare a glossary for emergency mapping vocabulary

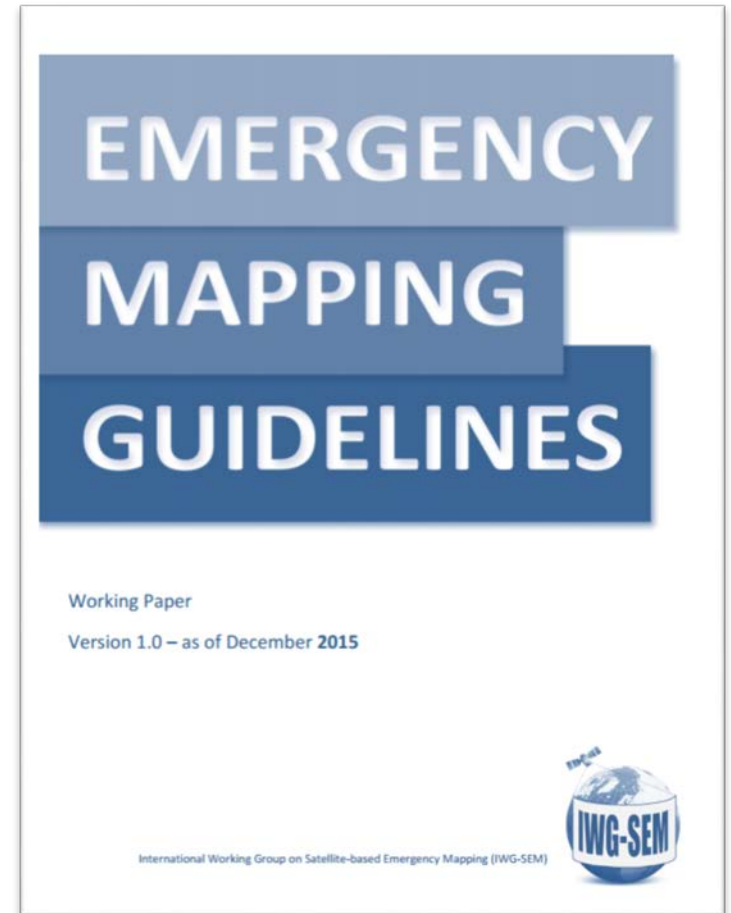


Emergency Mapping Guidelines

Chapter 2.2

EMERGENCY MAPPING INTERACTIONS BETWEEN OPERATORS

- *2.2.1 Information exchange*
- *2.2.2 Levels of interaction*
- *2.2.3 Interaction tools*

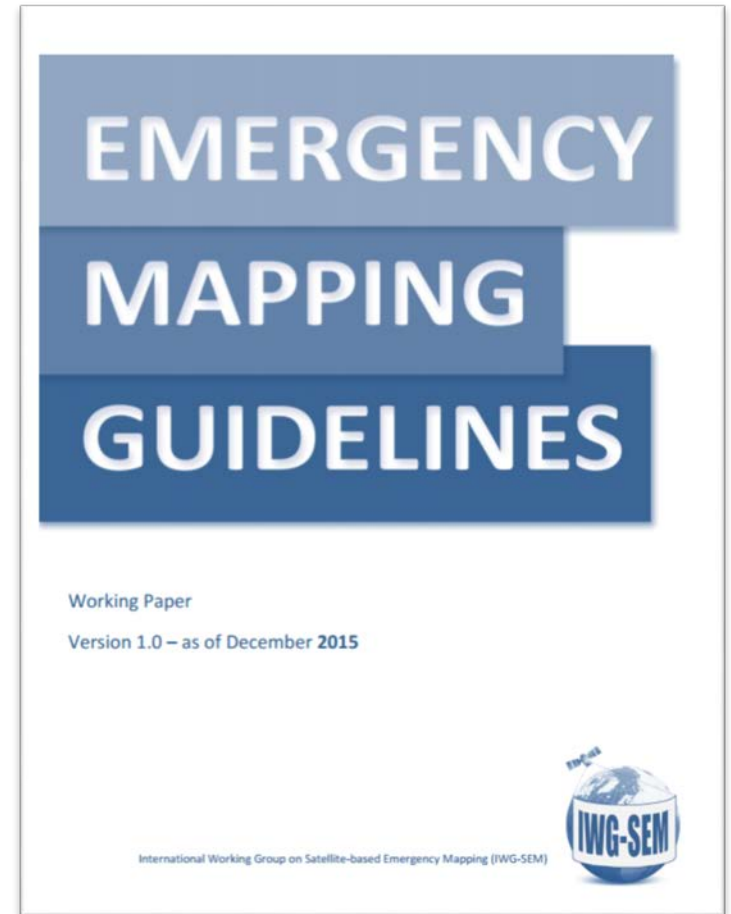


Emergency Mapping Guidelines

Chapter 2.2

ACTIVATION ONSET PHASE

- *2.3.1 Early warning systems and SEM activations*
- *2.3.2 Sharing of initial activation details, promoting efficiency and cooperation*
- *2.3.3 Social media applications in SEM*

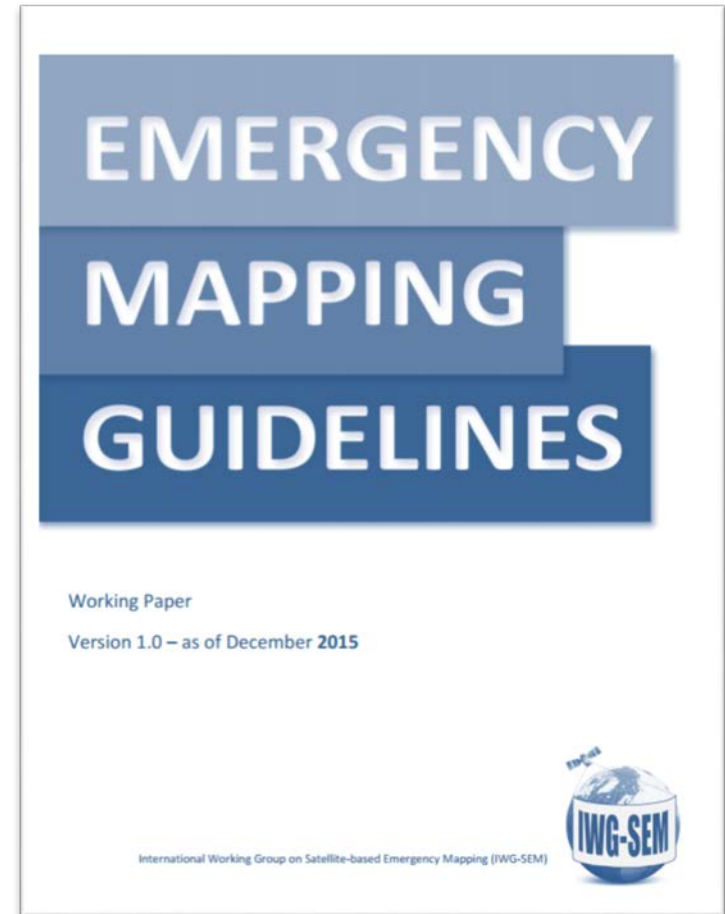


Emergency Mapping Guidelines

Chapter 2.2

SHARING OF SATELLITE DATA, ANALYSIS AND MAPPING RESULTS FOR SEM

- *2.4.1 Definitions of SEM Sharing*
- *2.4.2 Use and Sharing of Reference Datasets*
- *2.4.3 Sharing of Satellite Imagery Data*
- *2.4.4 Sharing of Analysis*
- *2.4.5 Sharing of Delivered Emergency Mapping Products*
- *2.4.6 Use/Licensing/Copyright*

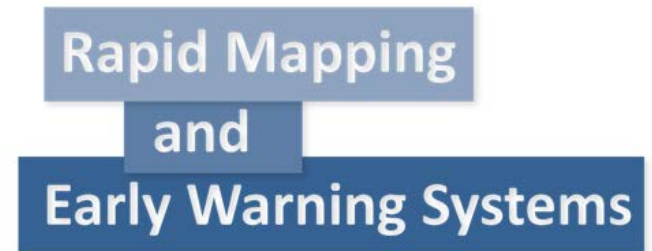


Rapid Mapping and Early Warning Systems

The proposition:

EARLY WARNING SYSTEM INFORMATION CAN HELP TO REDUCE THE TIME LAG BETWEEN AN EVENT AND DATA ACQUISITION

- *The Need*
- *The solution*
- *Types of Linked Early Warnings and Emergency Mapping*
- *Implementation of the link between EWS and Rapid Mapping*
- *What EWS's are used in rapid mapping?*
- *Copernicus EMS EFAS-Rapid Mapping: a concrete EWS-SEM integration*



IWG-SEM White paper

Version 1.0 – as of March 2018

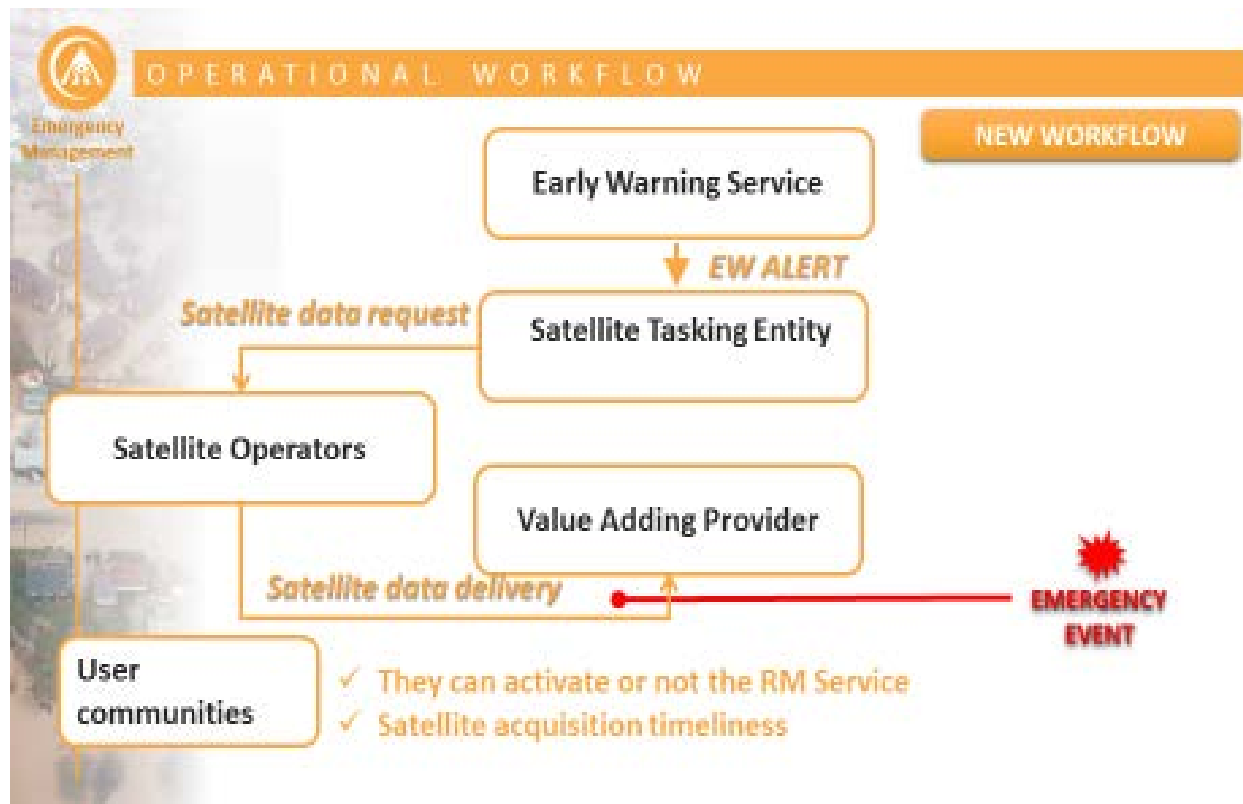
International Working Group on Satellite-Based Emergency Mapping



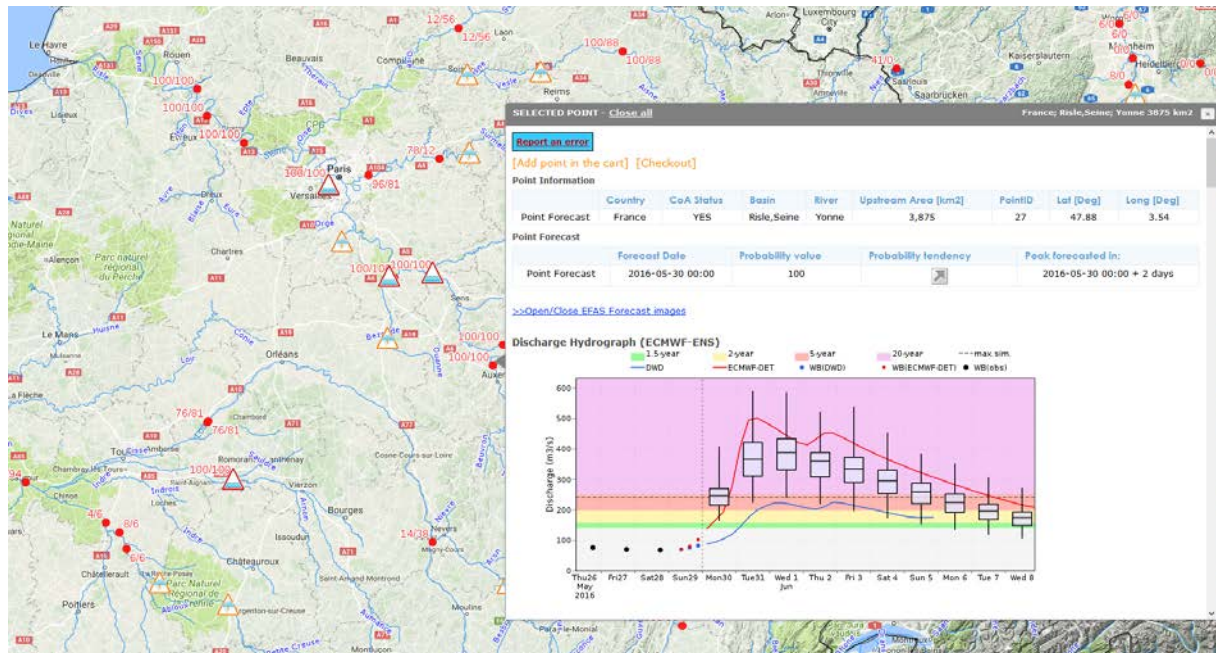
Rapid Mapping and Early Warning Systems

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Rapid Mapping and Early Warning Systems



Copernicus EMS EFAS forecast for 30 May 2016

Rapid Mapping and Early Warning Systems

EFAS early warning for potential rapid mapping activation for France

Situation description: Heavy rains are affecting central and northern parts especially during Monday 30 May until Wednesday 1 June. EFAS predicts a high risk of flooding from Tuesday 31 May onward for the Seine and Loire river basins.

Affected country: France

Affected river basin(s): Seine, Loire

Affected region(s): Indre-et-Loire, Seine-et-Marne, Essonne, Loir-et-Cher, Loiret

Predicted start of the event: Tuesday 31 May

Major affected cities: Montrichard, Romorantin-Lanthenay, Salbris (Region: Loir-et-Cher; severe flooding/peak expected 31 May); Amilly, Chalette-sur-Loing, Montargis (Region: Loiret; severe flooding/peak expected 31 May); Moret-sur-Loing, Nemours (Region: Seine-et-Marne; severe flooding/peak expected 31 May); Crosne (Region: Seine-et-Marne; severe flooding/peak expected 1 June); Coulommiers (Region: Seine-et-Marne; severe flooding/peak expected 2 June); Tours (Region: Indre-et-Loire; severe flooding/peak expected 3 June),

Next situation update: 31 May 2016

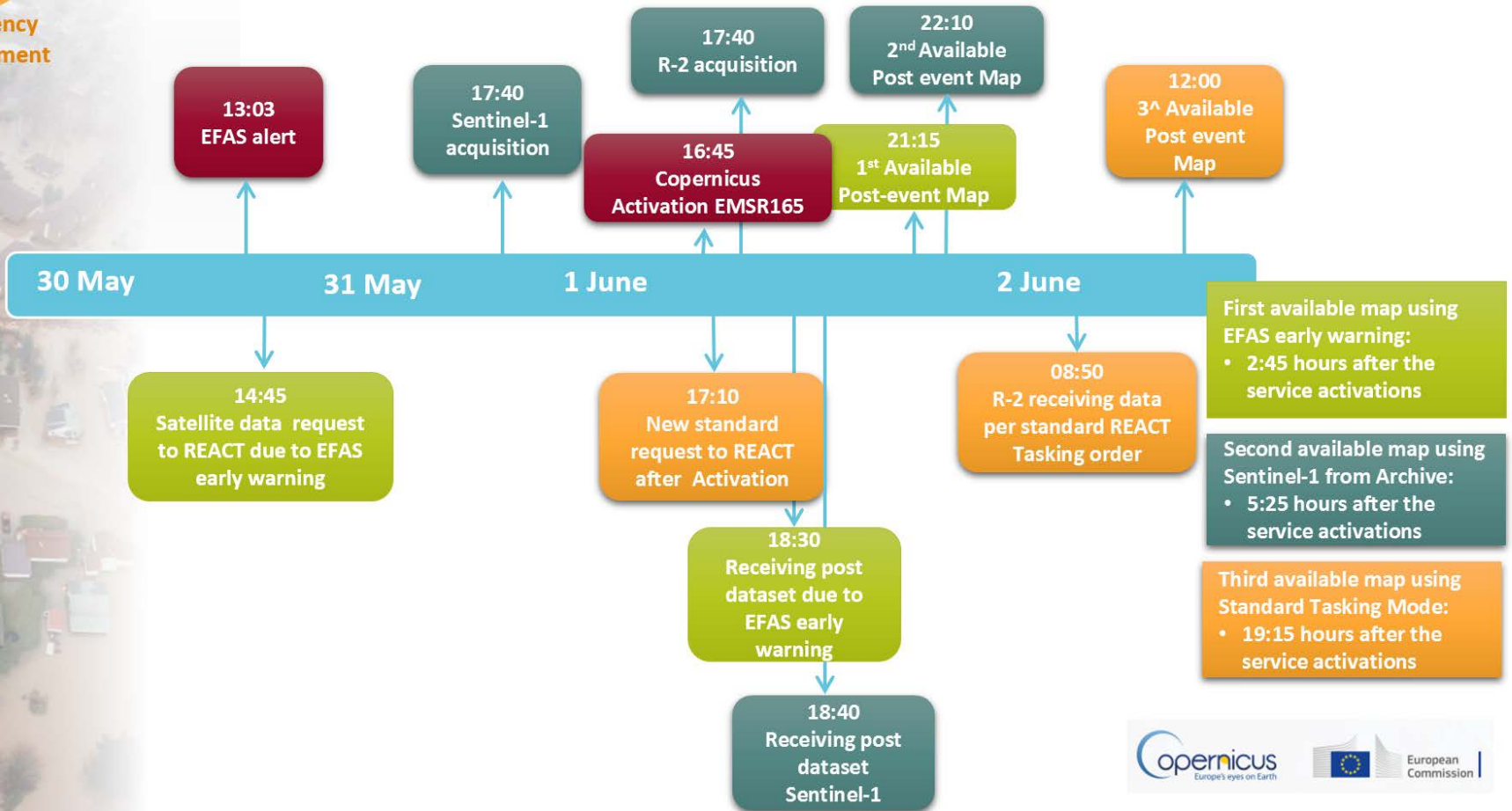
*Copernicus EMS EFAS alert text message
received by the SEM EMS*

Rapid Mapping and Early Warning Systems



Emergency Management

PRE-TASKING SUCCESS STORY



Rapid Mapping and Early Warning Systems

The proposition:

EARLY WARNING SYSTEM INFORMATION CAN HELP TO REDUCE THE TIME LAG BETWEEN AN EVENT AND DATA ACQUISITION



Advantages	Aspects to work on
The use of Early Warning can greatly reduce the time between activation request and the first post-event acquisition	It is not always possible to obtain forecasts on impact severity and hence focus on areas of interest
Risk acceptance has developed as it is now accepted that a certain number of pre-emptive images might image non optimal areas or non-pertinent events	Even if AOI's are large, a focus is needed in the acquisition process on priority area to obtain VHR-HR resolutions for optimal mapping



Rapid Mapping and Early Warning Systems

There is a need to continue to:

- **Test the existing Copernicus EMS EFFIS – RM system**
- **Incorporate more EWS if possible**

- **Other entities implement similar systems**
- **Share results and improve**

Operational tools/standards


GeoRSS Feed to automatically broadcast information about SEM activations.

Horizontal cooperation/sharing tool, allowing to clearly understand where SEM organization are currently active.

- **1st level:** at SEM activation level
- **2nd level:** at Area of Interest level

Minimum set of **standard metadata** ([technical specifications](#))

TECHNICAL SPECIFICATION OF GEORSS FEED VERSION 1 (26 NOVEMBER 2014)

International Working Group on 
Satellite-based Emergency Mapping (IWG-SEM)

Technical Specification of GeoRSS (Version 1 from 26.11.2014)

The IWG-SEM decided to use the GeoRSS feed to inform IWG-SEM members and other users about the emergency mapping activity. The feed is meant to spread the information as soon as possible after the emergency activation to allow potential cooperation of organizations involved in emergency mapping. The advantage of the GeoRSS feed is that it can be subscribed with normal RSS feed readers (MS Outlook, Mozilla Thunderbird) as well as with the GIS software (QGIS, ArcGIS etc.).

IWG-SEM agreed on the fields which should be included in the GeoRSS feed. There are mandatory and optional fields. The mandatory fields are those which contain substantial information about the activation. (what, where, when, who etc).

The optional fields are those which provide additional information about the activation. It is understood that the information included in the optional fields is not always available at the time of activation. However the organizations are encouraged to use these fields whenever possible to provide more complete information about the activation.

The fields of GeoRSS feed are in Table 1.

Field	Mandatory/Optional	Description/Note
Activation ID	Mandatory	The activation identifier used by an emergency mapping organization. It is expected that each organization have its own unique system of activation identifiers.
Type of event	Mandatory	Type of natural or humanitarian disaster. The use of the following list (small subset used by the GLIDE number specification) is encouraged: forest fire, flood, tsunami, earthquake, windstorm, industrial accident, other (used for disasters not on the list)
Activation notification date and time (UTC)	Mandatory	Date and time of the activation notification in UTC. It is the the time when the RSS feed was issued. It is automatic and it is not part of feed text.
Activation Location (point) specified by coordinates	Mandatory	The point placed in the "middle" of the expected mapping exercise. This serves as a rough indicator for the location. This field is not part of feed text, but it is contained in the feed xml file with appropriate geographic tags and coordinates. The geographic entity is point. It is used to display the location on the map using

PAGE 1 OF 2

Operational tools/standards

Example of GeoRSS Feed – Activation level

Aggregator of Emergency Mapping GeoRSS Feeds

Aggregator of Emergency Mapping GeoRSS Feeds

Source

Copernicus EMS - Rapid Mapping Activations
Copernicus EMS - Risk and Recovery Mapping Activations
DLR - ZKI | Activations GeoRSS Feed
Int. Charter on Space and Major Disasters
SERTIT Activations

Ctrl/Cmd + mouse = multiple sources. Unselect all to reset filter.

Date of publication - from:

2017-03-13

Title contains

to:

2018-03-14

YYYY-MM-DD, e.g. 2018-03-14

Description contains

Location - proximity

100

Kilometers

from

Enter (partial) address for geocoding.

Search

Reset



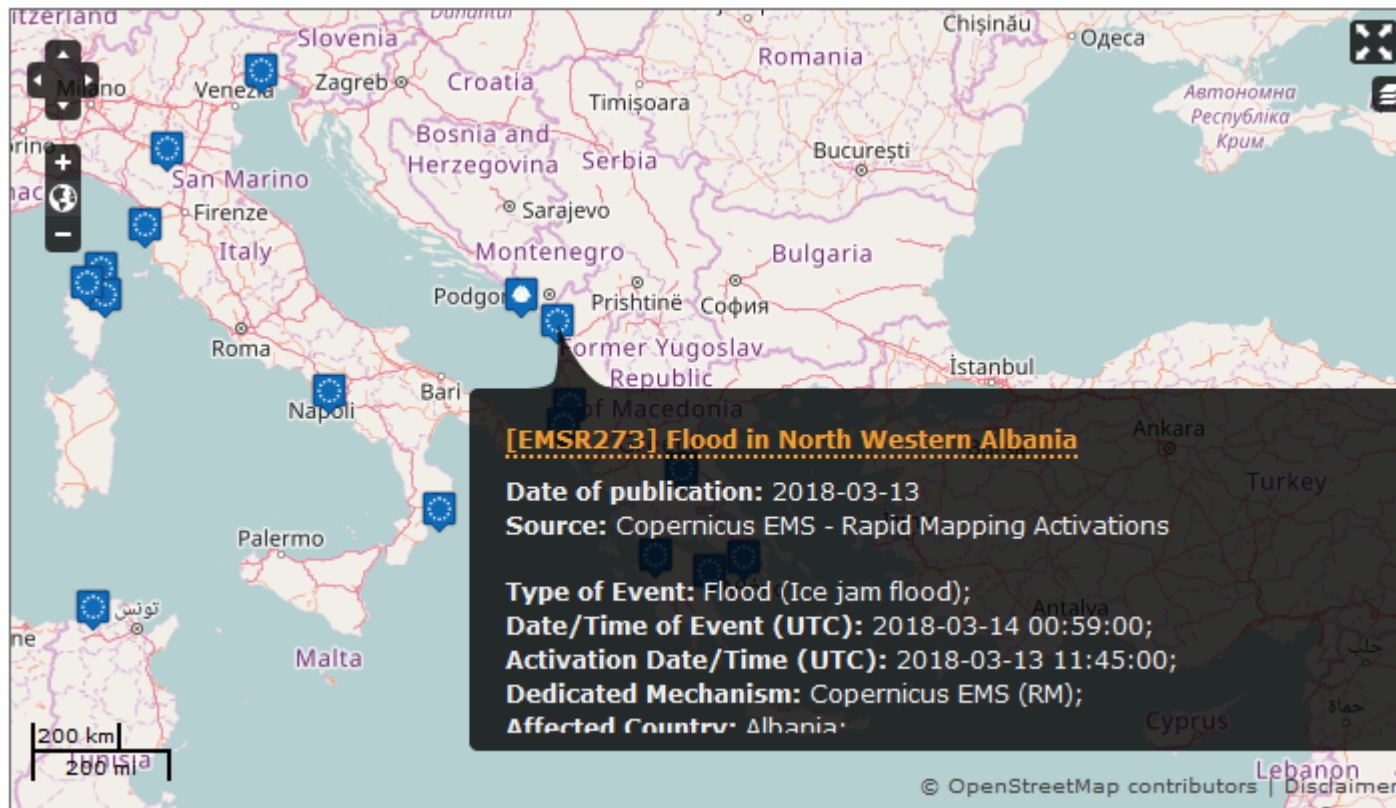
Above is a map of locations and descriptions of activations of several Emergency Mapping organizations which publish GeoRSS feeds compliant with the **IWG-SEM** recommended technical specification for emergency activations meta-data exchange.

The map is updated autonomously by means of GeoRSS feeds aggregation.

Operational tools/standards

Example of GeoRSS Feed – Activation level

Aggregator of Emergency Mapping GeoRSS Feeds

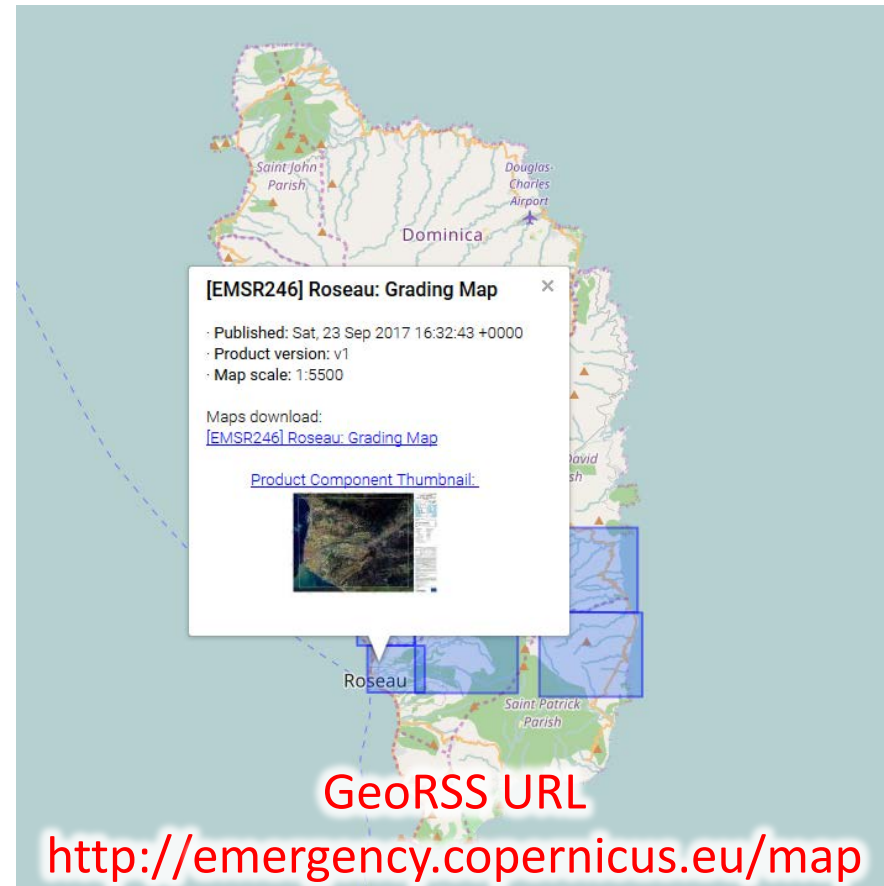
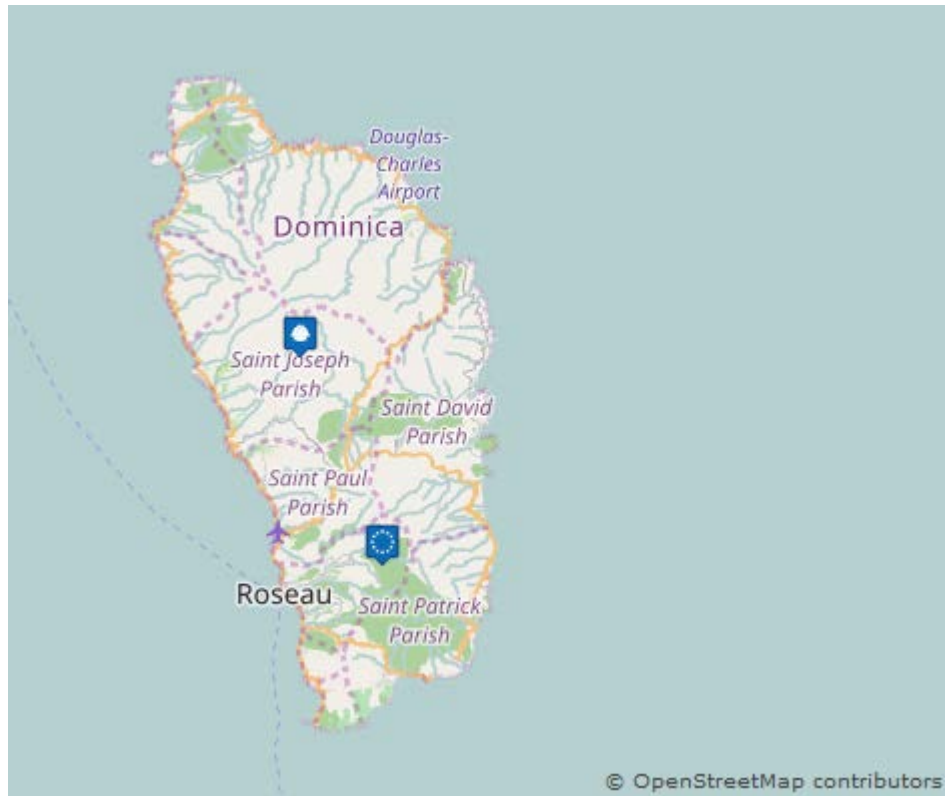


Operational tools/standards

Example of GeoRSS Feed – AOI Level

Example: Hurricane Maria in Dominica

Copernicus Emergency Management Service (© 2017 European Union), EMSR246



GeoRSS URL

<http://emergency.copernicus.eu/mapping/list-of-components/EMSR246/feed>

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