Sentinel Asia:
Procedure of Emergency Observation Request (PEOR)

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Sentinel Asia Procedure of Emergency Observation Request (EOR)

Revision Record

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1.0	April 2009	First formal version	Sentinel Asia JPT
1.1	August 2011	Modified version	Sentinel Asia JPT
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1.3	February 2017	Modified version	Sentinel Asia

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1 Introduction

Purpose

The purpose of this document is to define the procedures that govern an Emergency Observation Request (EOR) within the framework of the Sentinel Asia project.

This is a subsidiary document to the Terms of Reference (TOR) and Implementation Plan (IP) documents agreed among the Sentinel Asia participants, as shown in the figure below. Corresponding documents exist for the definition of procedures relating to Data Provider Nodes (DPN) and Data Analysis Nodes (DAN).

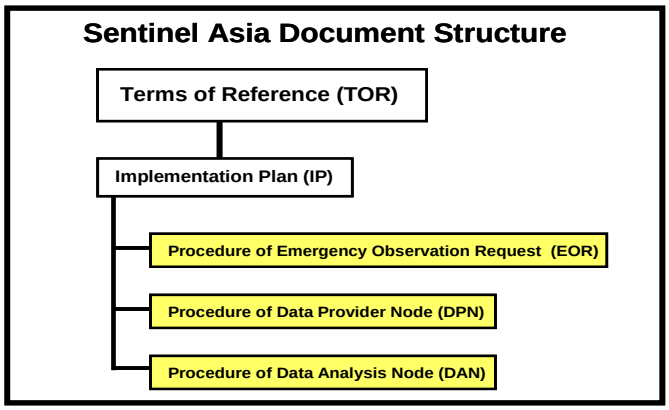

Figure 1-1
Sentinel Asia documentation hierarchy

Formal versions and revisions of this document are authorised by the members of the Joint Project Team (JPT) of Sentinel Asia.

Background

Statistics indicate that the Asia-Pacific region suffers disproportionately from natural disasters. Over the last 30 years, the region has been impacted by some 37% of disasters recorded worldwide, and accounts for 57% of global fatalities and 89% of the total victims associated with such disasters.

Figure 1-2
Asian disaster statistics

In light of these distressing statistics, the Asia-Pacific Regional Space Agency Forum (APRSAF) in 2005 proposed an initiative called Sentinel Asia, to showcase the value and impact of Earth observation technologies, combined with near-real-time internet dissemination methods and Web-GIS mapping tools for disaster management support in the Asia-Pacific region.

Sentinel Asia aims to:

- improve safety in society through the application of information and communication technologies (ICT) combined with space technologies;
- improve the speed and accuracy of disaster preparedness and early warning;
- improved disaster assessment and understanding of their impact and physical extent;
- minimize the number of victims and social/economic losses resulting from disasters;
- contribute to the establishment of rehabilitation plans.

Many of these goals are possible only through the wide-area and fast response collection of images and other data which can be acquired by Earth observing satellites.

Sentinel Asia is a voluntary and best-efforts-basis initiative led by the Asia-Pacific Regional Space Agency Forum (APRSAF) to share disaster information in near-real-time across the Asia-Pacific region, using primarily the Web-GIS technology. Its architecture is designed to operate initially as an internet-based, node-distributed information distribution backbone, eventually distributing relevant satellite and in situ spatial information on multiple hazards in the Asia-Pacific region.

The implementation plan for Sentinel Asia envisages an operational structure which includes a number of kinds of 'Nodes':

Asian Disaster Reduction Center (ADRC): The ADRC was established in 1998 with the mission to enhance disaster resilience of the member countries, build disaster resilient communities and to establish networks among countries through many programs including personnel exchanges in this field. The ADRC is the first point of contact in the Sentinel Asia EOR process.

Data Provider Nodes (DPN): These Nodes have access to a data stream from a spacecraft which they either own or have an agreement with the owners for operational access to, as well as supporting satellite data reception facilities and/or data archives; Data Provider Nodes are tasked to process the imagery they can collect in near real-time or from their existing archives into agreed information products, and make it available through the rest of the network.

Data Analysis Nodes (DAN): These Nodes analyze the satellite data provided by the DPNs, generate value added and combined products, which can be applied by disaster management response agencies and their partners, and disseminate the results through the Sentinel Asia System. One of these Nodes is nominated to be the **Principal Data Analysis Node (P-DAN),** and has the additional responsibility of coordinating the response of all other DANs to each Emergency Observation Request.

International Disaster Charter (IDC):The European and French space agencies (ESA and CNES) initiated the International Charter "Space and Major Disasters", with the Canadian Space Agency (CSA) signing the Charter on 20 October 2000. The International Charter aims at providing a unified system of space data acquisition and delivery to those affected by natural or man-made disasters through Authorized Users.

Contents

Section 2 explain the roles and responsibilities of the various Sentinel Asia participants – in the context of the EOR process. Section 3 provided more detail on the various procedures to be followed in the event of the generation and execution of an EOR.

Appendix A contains an overview of the various types of disaster and what types of Earth observation satellite instruments and data are of most value in each case. This checklist should be of value to the ADRC in its initial determination of an EOR.

Appendix B contains the EOR form template for completion by each requesting organisation.

Appendix C contains a feedback form for requesting organisations to complete as a mechanism to improve the effectiveness of Sentinel Asia.

2 EOR: roles, rights and responsibilities

Purpose of the EOR

The purpose of the Emergency Observation Request (EOR) is to appropriately and efficiently communicate the nature, timing and location of a disaster event, to allow an assessment of how the Sentinel Asia framework can best support in terms of disaster assessment and response planning, and to activate supporting agencies as required. It represents an appeal for assistance from the disaster-affected country and is the fundamental instrument around which the Sentinel Asia framework is organised and executed.

The EOR process also seeks to share experience in responding to disaster situations among Sentinel Asia countries and the responsible agencies within them – demonstrating the capabilities of Earth observation satellite data and imagery in combination with other information sources to help the disaster response process.

Roles and responsibilities

The roles of the various organisations are summarised in the figure below:

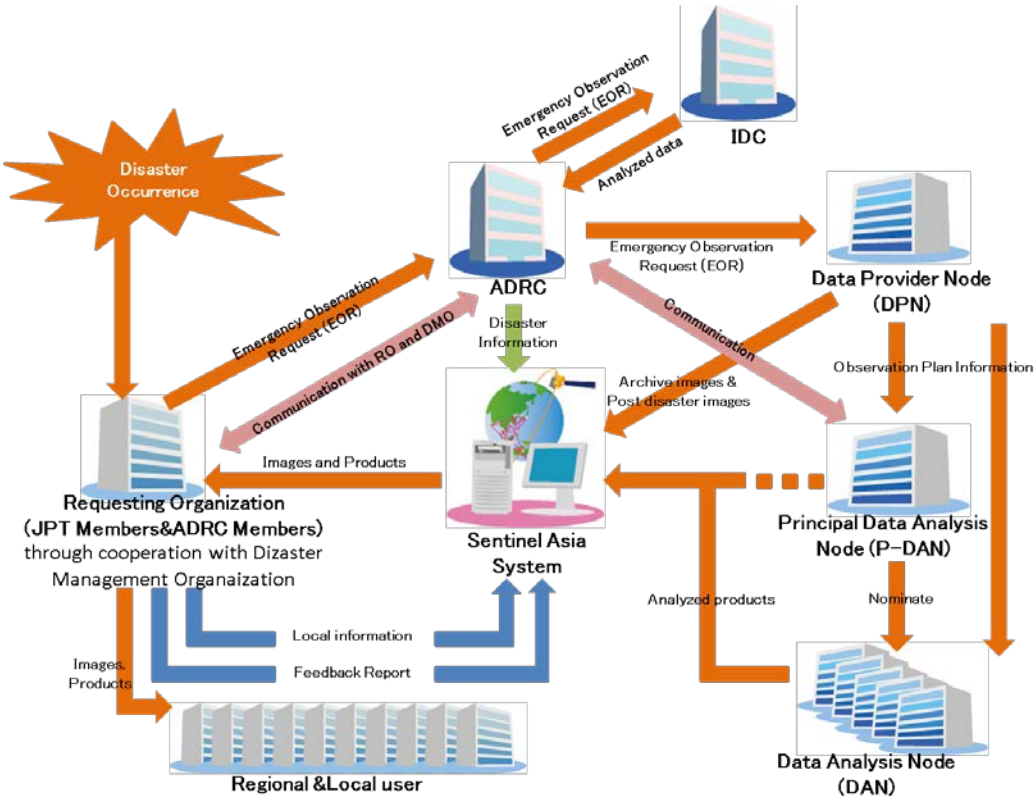

Figure 2-1
EOR flow within the Sentinel Asia system

Requesting Organisation (RO): An organisation which initiates an EOR is known within Sentinel Asia as the Requesting Organisation (RO). The RO may:

- be a Sentinel Asia Joint Project Team member; or
- be a counterpart of the Asian Disaster Reduction Centre in any member country (see below).

The RO of the disaster occurred country should initiate EOR in cooperation with RO's Disaster Management Organization to take an appropriate disaster response activates.

Organisations which do not meet these criteria may still initiate an EOR, in collaboration with a qualifying organisation. International Organizations that are members of the Joint Project Team and are located in the Asia Pacific region, are able to initiate an EOR in cooperate with their affiliated/member organizations that have a responsibility for disaster response matters in their country. A number of such organisations are in fact members of the Sentinel Asia Joint Project Team. ROs have a responsibility to ensure the personnel initiating an EOR are familiar with Sentinel Asia systems and procedures.

The first point of contact for all ROs is with the ADRC.

The Asian Disaster Reduction Center (ADRC): The ADRC was established in 1998 with the mission to enhance disaster resilience of the member countries, build disaster resilient communities and to establish networks among countries through a variety of programmes - including personnel exchange. ADRC Membership status is summarised in the figure below:

Figure 2-2
ADRC Member & Advisor Countries

The ADRC plays a pivotal and coordinating role in the EOR process and is the first point of contact for all ROs wishing to initiate an EOR. The ADRC undertakes the first evaluation of an EOR and judges whether the Sentinel Asia framework is suitable to assist. The ADRC remains the main point of contact with the RO and will announce progresses and spread status messages among the various Sentinel Asia Nodes and the ROs regarding the post-disaster situation and the Nodes' progress towards the provision of supporting data and information. If a disaster situation is serious, ADRC can escalate an EOR to IDC.

The ADRC has a responsibility to:

- Establish and maintain a current set of contact details (telephone, email and fax) such that the ROs can make contact with Sentinel Asia (during their office hour operating periods) with EORs;
- Provide personnel who are capable of adequately communicating with the ROs, DPNs , DANs and IDC in English – as the common working language for the Sentinel Asia framework;

– Ensure contact personnel are equipped with sufficient knowledge of the applications and capabilities of the various Earth observing satellite resources available to the DPNs, such that the ADRC can make an initial evaluation as to whether the Sentinel Asia capabilities are suitable in support of the disaster which is the subject of the proposed EOR;

The Sentinel Asia Secretariat: JAXA provides the Secretariat for the Sentinel Asia framework. The Secretariat will support the ADRC and the ROs in various aspects of the EOR execution.

Data Provider Nodes (DPN): The basic role of the DPNs in the EOR process is to attempt to acquire Earth observation satellite data of the disaster-affected area and to supply: imagery to the Sentinel Asia system; geospatial data to the Data Analysis Nodes for further processing and combination with other datasets and information to produce higher level data for use in disaster response applications. DPN responsibilities and procedures are detailed in a separate technical document.

Data Analysis Nodes (DAN): These Nodes have the task of analysing the satellite data provided by the DPNs, generating value added products, and providing the results through the Sentinel Asia system. DAN responsibilities and procedures are detailed in a separate technical document. The Principal Data Analysis Node (P-DAN) has the additional responsibility of coordination other DANs activities.

3 EOR procedures

Initiating an EOR

Initiation of an EOR should be limited to:

- after the occurrence of a disaster in the RO's national territory; exceptions may be possible in the event that relevant agencies (such as meteorological agencies) are certain of an impending natural disaster but, fundamentally, the Sentinel Asia system is designed to respond to disasters after their occurrence;
- disasters induced by natural phenomena, including but not limited to: floods, storms, typhoons, earthquakes, tsunamis, and landslides; Sentinel Asia is not intended to serve as a response to man-made crises – eg involving security situations or military conflicts, however certain human-induced disasters with significant impact on life and property, such as oil spills and forest-fires, do fall within the scope of the framework;
- 'major' disaster situations – involving impact on human life and/or property on a large scale.
- in the event that disaster situations are serious enough, the RO can request IDC activation. ADRC will judge whether or not to escalate to IDC regardless of RO's request status.

The default method for the initiation of an EOR for RO is to complete the online form at:

https://sentinel.tksc.jaxa.jp/

Fill out this online form adding the necessary information of EOR Appendix B.

A valid username and password is required to login. In the event that internet access is not available to permit the default method, the RO may contact the ADRC in Japan by email, fax or telephone to convey the EOR contents:

E-mail: sarequest@adrc.asia
Tel: +81-78-262-5540
Fax: +81-78-262-5546

Support for initiation of an EOR is also available from JAXA's Disaster Management Support Systems Office:

E-mail: z-sentinel.asia@ml.jaxa.jp
Tel: +66-2259-4192 (ext.12)
Fax: +66-2260-7027

The contents of the EOR are detailed in Appendix B, with a sample completed form for reference.

The RO should supplement the EOR with supplementary information from media sources wherever possible – to help expedite the validation of the nature and scale of the disaster.

The ADRC will: confirm receipt of the request; review the request to ensure that it has been submitted by an eligible RO and is complete; ask the RO for any clarifications required to make an initial evaluation as to the potential for Sentinel Asia to respond to the EOR. According to the information, ADRC approves finally the received EOR.

The ADRC will log the EOR as *current* on the Sentinel Asia webpage identified for that purpose and will update the EOR entry with status information as it progresses.

In the event that the same disaster results in multiple EORs from multiple ROs the ADRC will play a coordinating role to rationalise the Sentinel Asia response.

As the assessment of a disaster progresses, the RO may contact the ADRC to modify the EOR – eg by extending the geographical area, adding to the description of the disaster impact (eg if new hazards or human health implications emerge), and extending the time period of the emergency. The ADRC will manage the evaluation of the impact, if any, on the original data acquisition and analysis plans put in place by the DPNs and DANs. Updates to the Sentinel Asia webpage for current EORs will be handled by the ADRC.

Acquiring data in response to an EOR

The ADRC will notify the point of contact for the DPNs via email and/or telephone that an EOR has been received and requires action by Sentinel Asia.

Upon reception of an EOR from the ADRC, each DPN will make a determination (in consultation with the ADRC) as to whether the relevant datasets, information and processing capabilities which that DPN has to offer, would be relevant and beneficial in support of the particular disaster.

If appropriate, the DPN will initiate a data acquisition plan for those EORs which the DPN determines that it is equipped to support; this data acquisition plan will cover: emergency scheduling of satellite observations of the post-disaster state of the affected area; retrieval of archive imagery of the pre-disaster state of the affected area.

The DPN will inform the ADRC as to its data acquisition plan in response to the EOR. The DPN will also report as necessary on the progress and conclusion of the data acquisition plan to the ADRC which will serve as the coordinating body for informing the RO and any third parties as to progress.

Some direct dialogue may be necessary at this stage, using the points of contact maintained for this purpose, between the DPNs and the DANs, such that the DANs are as prepared as possible for the type of satellite data with the DPNs are able to provide and are ready to undertake suitable analysis and higher level product generation.

Results delivery

Using the agreed transmission and format standards (specified in the technical documents), the DPN will upload the imagery resulting from the data acquisition efforts (supplemented by whatever analysis content can be applied rapidly) to the Sentinel Asia system, notify the ADRC of this, and update the current EOR website on the Sentinel Asia system.

In the event that the RO has difficulty in accessing the Sentinel Asia system to retrieve the imagery, the DPN will endeavour to identify alternate means of communicating the results – by discussion with the RO. This could include email, FTP, fax etc.

In the event of IDC escalation, the IDC agencies will upload the imagery resulting from the data acquisition efforts (supplemented by whatever analysis contents can be applied rapidly) to the IDC delivery site, and notify the IDC Project Manager (PM) of this activation. At the time of IDC escalation from Sentinel Asia, the PM is undertaken by DANs authorized by IDC.

Data analysis in response to an EOR

The Sentinel Asia system, via the Principal DAN, will notify the point of contact for each DAN via email that an EOR has been received and requires action by Sentinel Asia.

The P-DAN, upon reception of an EOR from the ADRC, will confer with each DAN to make a determination (in consultation with the ADRC) as to whether the relevant datasets, information and processing capabilities which each DAN has to offer, would be relevant and beneficial in support of the particular disaster.

In consultation with the P-DAN, each DAN will initiate a data analysis plan for those EORs which it is equipped to support; this data analysis plan will cover: identification of the data anticipated from the DPNs (concluded by communication with the DPNs and exchange of their data acquisition plans); identification of the supporting datasets and information which would be of value for the analysis; definition of the proposed analyzed-products which the DAN will inject into the Sentinel Asia system.

The P-DAN will advise the ADRC of the overall data analysis plan and of the individual plans of each DAN. The DAN will also report as necessary on the progress and conclusion of the data analysis plan to the P-DAN, which will provide overall updates to the ADRC - as the coordinating body for informing the RO and any third parties as to progress.

Once the P-DAN has been notified, each DAN will upload the results of the data analysis efforts to the Sentinel Asia system - using the agreed transmission and format standards (specified in the technical documents). The ADRC should also be notified and the current EOR website on the Sentinel Asia system updated to include these results.

The IDC data analysis is conducted under the supervision of the PM. At the time of IDC escalation from Sentinel Asia, the PM is undertaken by DANs authorized by IDC. The PM will upload the analized products to the Sentinel Asia system.

Assisting the RO with the results

The ADRC will serve as the main interface with the RO and its agency partners in assisting them to interpret and apply the results provided via the Sentinel Asia system in support of their disaster response applications. The ADRC may request DPNs and DANs to provide particular technical advice or interpretation in support of this role.

As appropriate, depending on geography and politics, the ADRC may delegate the role of interface to the RO and assisting with the results to one of the DPNs or DANs.

Archiving the results of an EOR

The ADRC will confirm in due course with the RO that the relevant disaster is no longer classed as current. The EOR page should then be transferred from the current EOR section of the Sentinel Asia website, and archived for future generation of statistics as to the utilisation and operation of Sentinel Asia. The chronology of the EOR, as contributed by the various players in the Sentinel Asia system, will also serve as a useful educational tool to improve processes and manage expectations as to the various steps and timescales involved in the EOR system.

Data policy procedures

At all stages of the EOR process, any data which is generated, exchanged, or provided will be subject to the Sentinel Asia data policy guidelines:

1. The copyright rules of the supplying agency shall apply to any data or products supplied by the Sentinel Asia system.
2. The relevant copyright marks shall be displayed on any image or derived products – eg *"Provided by Sentinel Asia, © DPN Agency" or "Provided by Sentinel Asia, Satellite data © DPN Agency, further processing applied by DAN Agency".*

3. Sentinel Asia outputs are strictly for humanitarian, academic and non-commercial purposes and shall not be used for any other purpose whatsoever. Also, the data which provided by Data Provider Node is strictly for Data Analysis by DAN or organization who designated formally by the DAN and these data may not be distributed to the third Parties.
4. Sentinel Asia is a best efforts framework and participating agencies shall not be held to any assurance or warranty that the outputs satisfy a particular purpose, nor shall they accept any liability or compensation claims resulting from use of the Sentinel Asia outputs.

Various measures shall be applied to enforce these data policy procedures, including the conclusion of Non-Disclosure Agreements by all DPN and DAN agencies.

It is fundamental objective of Sentinel Asia to share data with those in need, and all parties to the process must recognise that any data contributed to the Sentinel Asia system will be shared in this way.

RO Feedback

As part of efforts to continually improve the effectiveness of the Sentinel Asia outputs, all ROs shall, as a condition of submitting an EOR, endeavour to supply within 3 months of the initiation of an EOR, feedback to the ADRC as to the value of the data and information provided by Sentinel Asia and the experience of working with Sentinel Asia to secure those results. A feedback form has been developed for this purpose (see Appendix C) and will be provided to ROs by the ADRC when appropriate.

The ADRC will circulate this feedback among all Sentinel Asia Nodes and attach it to the EOR details on archive.

A Disaster scenarios and relevant satellite data

This appendix will tabulate the various types of disaster scenario and identify satellite data of particular relevance. It will serve as a reference to the ADRC in its initial response to an EOR and its determination.

Earthquake
Experience suggests that the highest resolutions of optical data are the most useful data to support earthquake damage assessment. SAR has a value in assessing infrastructure status – including by using before/after image comparison pairs. Archive data may be useful in this regard.
Sentinel Asia role: Damage assessment and infrastructure assessment in support of recovery operations (roads, bridges etc)
Table of relevant sensors identified by DPNs: *To be added*
Fire
Infrared sensors are able to penetrate smoke and identify fire hotspots. Night-time acquisitions are less susceptible to false alarms. Day-time imagery (IR and multispectral) can also provide an indication of smoke location. SAR has a value in fire scar mapping and damage assessment.
Sentinel Asia role: Fire detection and mapping and recovery planning.
Table of relevant sensors identified by DPNs: *To be added*
Flood
SAR data are particularly useful for flood monitoring - even in the presence of persistent cloud cover. Imagery with the same geometric and polarisation statistics are preferred. Cloud free optical data is useful for flood inundation mapping if available. Change detection techniques using time series of imagery of the affected region are most useful to be able to derive the extent of the flood inundation. Single SAR images of flooded areas are still useful indicators of the disaster extent and location. Microwave data of precipitation and surface can also be valuable.
Sentinel Asia role: Damage assessment and flood inundation maps
Table of relevant sensors identified by DPNs: *To be added*

Landslide
Very high resolution data is required for landslide response applications – in particular optical data.
Sentinel Asia role: Damage assessment and recovery
Table of relevant sensors identified by DPNs: *To be added*
Oil spill
Radar data is the most useful – with the capability to locate oil spill extent through changes to surface roughness, day or night. This capability varies depending on sea surface wind conditions. Cloud free optical data is also useful in locating oil spills.
Sentinel Asia role: Damage assessment and containment operations
Table of relevant sensors identified by DPNs: *To be added*
Sea ice hazard
Wide area radar or microwave data is capable of mapping the extent, classification, and concentration of sea ice hazards. Wide area optical data can also be useful.
Sentinel Asia role: Hazard extent and classification mapping for rescue operations
Table of relevant sensors identified by DPNs: *To be added*
Typhoons and storms
Sentinel Asia systems are not designed to provide the storm tracking or prediction support – these are the focus of dedicated meteorological systems. Typically Sentinel Asia systems will be employed after a severe storm or typhoon has generated an emergency situation. Medium to high resolution optical data is the most effective for damage assessment. SAR data are useful in contributing to structural damage assessments – including through change detection techniques (typically requiring pairs of data acquired over time using the same SAR modes of polarisation etc).
Sentinel Asia role: Mapping affected areas for recovery support and damage assessment
Table of relevant sensors identified by DPNs: *To be added*

Volcanic eruption
Ash clouds can restrict availability of optical data. For damage assessment, high-resolution optical sensors are the most useful. Lower resolution data, including from IR sensors, is suitable for ash plume location. SAR data are most useful in change detection applications.
Sentinel Asia role: Damage assessment – lava flow and ash location and extent
Table of relevant sensors identified by DPNs: *To be added*

B Emergency Observation Request Form

SENTINEL ASIA
EMERGENCY OBSERVATION REQUEST (EOR) FORM

Your name and organization		
Your name		
Your organization		
	Membership ☐ JPT member ☐ ADRC member	
Your phone		
Your cellular phone		
Your fax		
Your E-mail		
Other E-mail(s) for notification		
Disaster type		
☐ Flood ☐ Landslide ☐ Storm ☐ Fires ☐ Volcano ☐ Earthquake ☐ Ice hazard ☐ Tsunami ☐ Other :		
Place of occurrence		
Country		
Date of occurrence		
Date and time (UTC)		
Request area		
Name of a place		
Please select one	☐ Circular zone	Coordinates of center point  Latitude : ° ' " N Longitude : ° ' " E Radius : km
	☐ Rectangular zone	Coordinates of corners Lat. : ° ' " N Lon.: ° ' " E  Lat. : ° ' " N Lon.: ° ' " E
Details, news source		

Based upon request from requesting organization (RO), this Emergency Observation Request (EOR) may escalate to International Charter for Space and Major Disasters (IDC) when secretariat confirms its appropriateness.
If RO wishes to escalate to IDC, Please check the box right.

Escalate

Please fill the form and send it to ADRC
+81-78-262-5546 (Fax) or sarequest@adrc.asia (E-mail)

Request ID (To be filled by ADRC)	

SENTINEL ASIA
EMERGENCY OBSERVATION REQUEST (EOR) FORM **EXAMPLE**

Your name and organization	
Your name	Ichiro TOKYO
Your organization	Japan Aerospace Exploration Agency (JAXA)
	Membership ☑ **JPT member** ☐ **ADRC member**
Your phone	+81-50-3362-XXXX
Your cellular phone	+81-90-1234-XXXX
Your fax	+81-3-6259-XXXX
Your E-mail	Ichiro.tokyo@jaxa.jp
Other E-mail(s) for notification	Ichiro.tokyo123@jaxa.jp
Disaster type	
☑ **Flood** ☑ **Landslide** ☐ **Storm** ☐ **Fires** ☐ **Volcano** ☐ **Earthquake** ☐ **Ice hazard** ☐ **Tsunami** ☐ **Other :**	
Place of occurrence	
Country	Japan
Date of occurrence	
Date and time (UTC)	August 11, 2011, 01:00 UTC
Request area	
Name of a place	Hatoyama-machi, Saitama Prefecture, Japan
Please select one ☐ **Circular zone**	Coordinates of center point Latitude : ° ' " N Longitude : ° ' " E Radius : km
Please select one ☑ **Rectangular zone**	Coordinates of corners Lat. : 35° 45' 22 " N Lon.: 138° 40' 15 " E Lat. : 36° 20' 08 " N Lon.: 139° 40' 10 " E
Details, news source	
Heavy rain caused by Typhoon Taro induced very large scale of Flood and several landslides in the Saitama Prefecture. Almost 100,000 peoples refuge from their home and several causalities has reported by the Government. News sources; (1) http://www.jaxa.jp (2) http://www.japantimes.co.jp	

Based upon request from requesting organization (RO), this Emergency Observation Request (EOR) may escalate to International Charter for Space and Major Disasters (IDC) when secretariat confirms its appropriateness. If RO wishes to escalate to IDC, Please check the box right.

Escalate ☐

Please fill the form and send it to ADRC
+81-78-262-5546 (Fax) or sarequest@adrc.asia (E-mail)

Request ID (To be filled by ADRC)	

C RO Feedback Form

This form asks requesting organisations to provide feedback to Sentinel Asia, on the value and effectiveness of its procedures and outputs in support of an EOR.

Feedback Questionnaire

Name : _____

Organization and Section : _____

Date of Request : _____ **Type of Disaster :** _____

Method of Request : ☐ **Website** ☐ **E-Mail** ☐ **FAX** ☐ **Phone**

A	Response from ADRC	Yes	No
1	Are you satisfied with the time between your observation request and the first response from ADRC?	☐	☐
2	Are you satisfied with the time between the first response from ADRC and our first announce that the imageries were ready?	☐	☐
B	**Utilization in your organization**	**Yes**	**No**
1	Did the provide satellite imageries helped understand exact disaster area?	☐	☐
2	Were you satisfied with the quality of the imageries?	☐	☐
3	Did you or another section create **maps with geographical information** (such as lat/lon grid, place name, main roads). If YES, please attach the maps and explain the method. If another section created, which section created? If NO, please identify reasons and lessons to be learned.	☐	☐
4	Did you or another section create **disaster area maps** by interpretation and/or analysis of the imageries? If YES, please attach the maps and explain the method. If another section created, which section created? If NO, please identify reasons and lessons to be learned.	☐	☐

5	Did you or another section create **evacuation maps** by interpretation and/or analysis of the imageries? If YES, please attach the maps and explain the method. If another section created, which section created? If NO, please identify reasons and lessons to be learned.	☐	☐
6	Were the imageries and maps effective to protect citizens and properties from a secondary disaster? If YES, please explain how the imageries and maps were utilized for the protection. If NO, please identify reasons and lessons to be learned.	☐	☐
7	Did some organizations successfully dispatch rescue team to the disaster area thank to the imageries and maps? If YES, please explain how the imageries and maps contributed to specify the rescue site. If NO, please identify reasons and lessons to be learned.	☐	☐
8	Did the imageries and maps contribute to mitigate casualties and property losses? If YES, please explain the story of disaster mitigation. If NO, please identify reasons and lessons to be learned.	☐	☐
9	Were the imageries and maps helpful when you roughly estimated the total number of casualties with the data of population distribution? If YES, please explain the procedure of estimation. If NO, please identify reasons and lessons to be learned.	☐	☐

10	Did you use the imageries and maps when you roughly calculated economy losses due to the disaster? If YES, please explain the procedure of estimation. If NO, please identify reasons and lessons to be learned.	☐	☐
C	**Utilization out of your organization**	**Yes**	**No**
1	Did you or another use the imageries and maps for the explanatory material of the disaster to governmental organizations or royal house? If YES, please list the organizations. We are grateful if you attach the documents for explanation. If NO, please identify reasons and lessons to be learned.	☐	☐
2	Did you or another provide the imageries and maps to governmental, nongovernmental, or international organizations for disaster relief activities? If YES, please list the organizations and explain how the imageries or maps were used. We are grateful if you attach the documents for explanation. If NO, please identify reasons and lessons to be learned.	☐	☐
3	Did you or another provide the imageries and maps to public media (such as TV, newspaper, radio), and some of the media introduced them in the articles or news? If YES, please list the media, and attach the article or news if possible. If NO, please identify reasons and lessons to be learned.	☐	☐
D	**Contribution to post-disaster activities**	**Yes**	**No**
1	Were the imageries and maps very useful for post-disaster rehabilitation activities?	☐	☐
2	Were the imageries and maps very useful for disaster preparedness activities?	☐	☐
3	Were the imageries and maps very useful for education of disaster mitigation?	☐	☐
E	**Others**		

C RO Feedback Form

To improve “Sentinel Asia” activities, please leave any comments and requests.

The E-mail address to return is sarequest@adrc.pr.jp.

Thank you very much for your cooperation.