

Operation and Application of Sentinel Asia for Emergency Observation

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Asian Disaster Reduction Center

ACDR2007, 25-27 June 2007, Kazakhstan



1

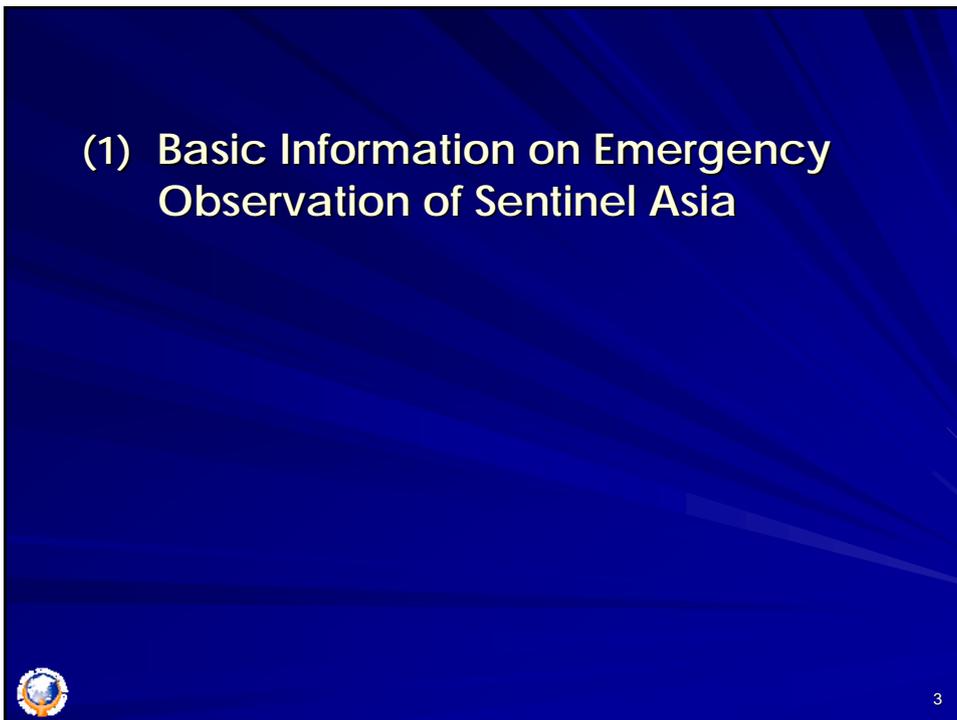
CONTENTS

- (1) Basic Information on Emergency Observation of Sentinel Asia
- (2) Approach and Procedure to Make Emergency Observation Request
- (3) Site Photo Upload and Contribution to Web Forum
- (4) Key Words for the Success of Sentinel Asia for Disaster Reduction



2

(1) Basic Information on Emergency Observation of Sentinel Asia



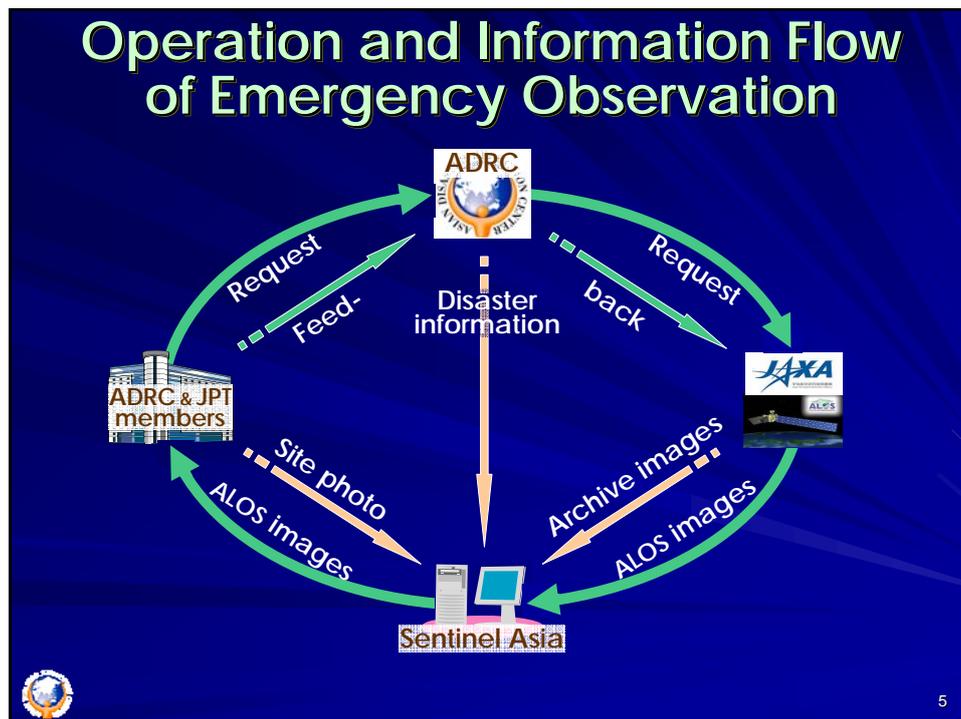
Main Activities of Sentinel Asia

Recent Disasters and Emergency Observation Disaster Information and Emergency observation in case of major disasters by ALOS and other available resources for ADRC and JPT member institutions

Wildfire Monitoring Wildfire monitoring by MODIS

Flood Monitoring Flood monitoring by TRMM, AMSER-E, SSM/I, AMSU, etc.

Capacity Building Capacity-building for utilization of space technology for disaster management



Conditions of Emergency Observation (1)

- ADRC counterpart organizations and JPT members are eligible to request for the emergency observation (ID and PW)
- Emergency observation is applied to any kind of large-scale natural disasters
- Satellite image is provided free-of-charge and no commercial use is allowed
- You are encouraged to upload the latest disaster information and site photo etc.



Conditions of Emergency Observation (2)

- It is a voluntary and best-effort system, so that the request may not always be accepted
- It may take time from request to data dissemination due to the position of satellite, weather condition as well as data processing
- Request by web, email and fax is available 24 hours but telephone is only answered in working time



7

Considerations for Acceptance of Emergency Observation

- 1 Disaster Scale
- 2 Urgency
- 3 Necessity and Effectiveness of Space Image
- 4 Availability of the Satellite



8

Emergency Observation Activities (from October 24, 2006 -)

No.	Request			Acceptance	Observation		Remarks
	Date	Institution	Disaster		Date	Sensor	
1			Mudslide (12/1, Philippines)	Yes	2006/12/3 2006/12/5	AVNIR-2	Observed because extensive damage
2	2007/2/5	LAPAN, Indonesia	Flood (2/3)	Yes	2007/1/3 2007/2/5	PALSAR	
3	2007/3/6	LAPAN, Indonesia	Earthquake (3/6)	Yes	2007/3/7	AVNIR-2	
4	2007/4/2	ACRES, Australia	Earthquake (tsunami, 4/2, Solomon Islands)	Yes	2007/4/7	AVNIR-2	
5	2007/5/17	GISTDA, Thailand	Heavy rainfall	No			No damage reported and sever damage could not be foreseen
6	2007/5/30	DEIDP, Nepal	Snowstorm (5/27)	Yes	2007/5/27 2007/6/1	AVNIR-2	



9

(2) Approach and Procedure to Make Emergency Observation Request



10

Emergency Observation Request by Internet, E-mail, Fax or Telephone



<http://dmss.tksc.jaxa.jp/sentinel/index.php>



sarequest@adrc.or.jp



+81-78-262-5546

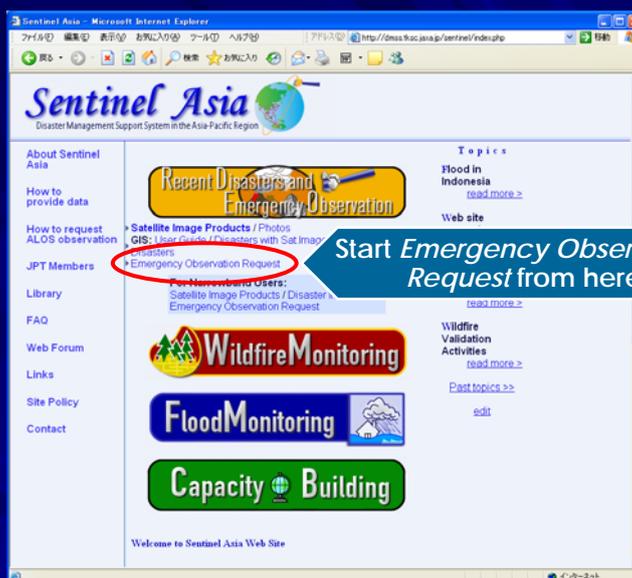


+81-78-262-5540
(Collect call is accepted)



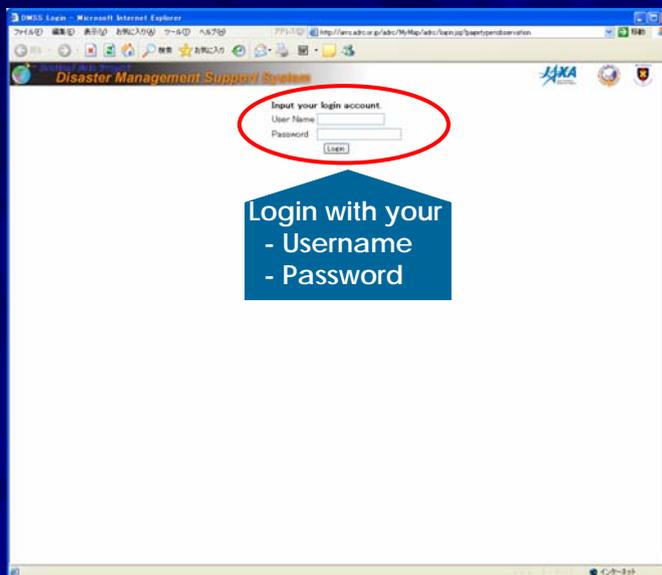
11

<http://dmss.tksc.jaxa.jp/sentinel/index.php>



12

Login with Username and Password



13

Make Request with Available Means

Request through website if

- (a) the disaster has already appeared in the disaster list
- (b) The disaster hasn't been identified in the disaster list

Request by e-mail, fax or telephone

14

Request in the Case of Disaster Was Already Identified (1)

The screenshot shows the DMSS interface with a search filter for 'Earthquake'. The table below lists several disaster events:

GLIDE Number	Event	Duration	Country	Comment	# of Satellite	# of Photos Provided by
IS-2007-00001-124	Earthquake		Indonesia	A strong earthquake followed by an almost equally strong aftershock rocked Sumatra in western Indonesia on Tuesday, 6 March 2007, killing at least 30 people.	0	0 ADRC
IS-2007-00002-124	Landslides	2007/03/03	Indonesia	more are missing in landslides on the Indonesian island of Flores, officials have said.	0	0 ADRC
IS-2007-00003-124	Floods	2007/02/19	Indonesia	On February 2007, landslides triggered by torrential rain hit two places on Indonesia's main Java island over the weekend, leaving eight people dead and six missing.	0	0 ADRC
FI-2007-00003-124	Floods	2007/02/02	Indonesia	Floods in Indonesia's capital, Jakarta, have killed five people and forced about 100,000 to leave their homes.	6	0 ADRC
FI-2007-00010-124	Floods	2007/01/14	Malaysia	Malaysian health officials are on alert for outbreak of disease as a second wave of floods hits southern areas, forcing more than 90,000 people to flee their homes and seek shelter at crowded relief centres.	0	0 ADRC
FI-2007-00009-124	Floods	2007/01/13	Sri Lanka	On 13 January 2007, around 60,000 people have been displaced in Sri Lanka by flooding caused by torrential monsoon rains, while the death toll from landslides a day earlier rose to 13.	0	0 ADRC

15

Request in the Case of Disaster Was Already Identified (2)

The screenshot shows the details for the earthquake event (GLIDE Number: IS-2007-00001-124). It includes a map of the affected area in Sumatra, Indonesia, and a table of related satellite images:

Thumbnail	Observation Date/Provider	Satellite	Sensor Product	Comments
	2007/03/07 04:10:04 JAXA	ALOS	AVNR-2 L1B2	ALOS/AVNR-2, Indonesia, Earthquake, Observed on Mar. 07, 2007

At the bottom of the page, there is a button labeled "Request more observation" which is circled in red. A blue arrow points to it with the text "Click Request More observation".

16

Request in the Case of Disaster Was Already Identified (3)

Provide disaster information here

Click Submit Request

Request in the Case of Disaster Hasn't Been Identified (1)

Click Request New Observation

Request through website - If the disaster is NOT identified in the list.

Request by e-mail, fax, or telephone.

Please fill out the request form and send it by e-mail or fax. In other way, call to us.

Download request form:

- Microsoft Word format [50KB]
- Microsoft PDF format [11KB]

Contact point:

- ADRC
 - Name: Asian Disaster Reduction Center (ADRC)
 - E-mail: adrequest@adrc.or.jp
 - Tel: +81-79-262-5540
 - Fax: +81-79-262-5546

Request in the Case of Disaster Hasn't Been Identified (2)

Provide disaster information here

Click Submit Request

Request Through E-mail and Fax (Emergency Observation Request Form)

SENTINELASIA EMERGENCY REQUEST FORM																									
Call ID (to be filled by ADRC):	Date and time of the call:																								
Date (dd/mm/yyyy, UTC)	Time (UTC)																								
Local time zone	Name of the organization and caller																								
Name:	Organization <input type="checkbox"/> ADRC member <input type="checkbox"/> JPT member																								
Address:	Telephone:																								
Cellular Phone:	Fax:																								
E-mail:	Emergency type																								
<input type="checkbox"/> Flood <input type="checkbox"/> Landslide <input type="checkbox"/> Storm <input type="checkbox"/> Fires	<input type="checkbox"/> Volcano <input type="checkbox"/> Earthquake <input type="checkbox"/> Ice hazard <input type="checkbox"/> Industrial danger																								
Other:	Approximate date and time of occurrence																								
	Date (dd/mm/yyyy, UTC)																								
	Time (UTC)																								
	Local time zone																								
Area details																									
Area Name / Country	Coordinates of center point																								
<input type="checkbox"/> Circular zone	<table border="0"> <tr> <td>Latitude</td> <td>:</td> <td>:</td> <td>:</td> <td>"</td> <td>N/S</td> </tr> <tr> <td>Longitude</td> <td>:</td> <td>:</td> <td>:</td> <td>"</td> <td>E/W</td> </tr> <tr> <td>Radius</td> <td>:</td> <td>:</td> <td>:</td> <td>km</td> <td></td> </tr> </table>	Latitude	:	:	:	"	N/S	Longitude	:	:	:	"	E/W	Radius	:	:	:	km							
Latitude	:	:	:	"	N/S																				
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Radius	:	:	:	km																					
<input type="checkbox"/> Rectangular zone	Coordinates of corners																								
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Lat.	:	:	:	"	N/S																				
Lon.	:	:	:	"	E/W																				
	:	:	:	"	N/S																				
	:	:	:	"	E/W																				
Comments or special instructions																									
<small>ADRC member / JPT member Fill the form and fax it to ADRC, +61-78-262-5646 And send it as a backup via E-mail to panipatt@adorc.org.au</small>																									

Please provide:

- Information of your organization
- Type of disaster and occurrence time
- Location of observation (Lat./Lon. and/or name)
- Information of damage, casualties, etc. as detail as possible

(3) Site Photo Upload and Contribution to Web Forum



Site Photo Upload (1)



Site Photo Upload (2)

The screenshot shows the Disaster Management Support System interface. A table lists disaster events with columns for GLIDE Number, Event, Duration, Country, Comment, # of Satellite, and # of Photos Provided by. A red circle highlights the 'GLIDE Number' column header, and a blue arrow points to it with the text 'Click GLIDE Number'.

GLIDE Number	Event	Duration	Country	Comment	# of Satellite	# of Photos Provided by
ED-2007-00003-10N						0 ADRC
LD-2007-00002-10N	Landslides	2007/03/03	Indonesia	On February 2007, landslides triggered by torrential rain hit two places on Indonesia's main Java island over the weekend, leaving eight people dead and six missing.	0	0 ADRC
LS-2007-00004-10N	Floods	2007/02/19	Indonesia	Floods in Indonesia's capital, Jakarta, have killed five people and forced about 100,000 to leave their homes.	6	0 ADRC
FL-2007-00003-10N	Floods	2007/02/03	Indonesia	Malaysian health officials are on alert for outbreaks of disease as a second wave of floods hits southern areas, forcing more than 90,000 people to flee their homes and seek shelter at crowded relief centres.	0	0 ADRC
FL-2007-00016-WC3	Floods	2007/01/14	Malaysia	On 13 January 2007, around 80,000 people have been displaced in Sri Lanka by flooding caused by torrential monsoon rains, while the death toll from landslides a day earlier rose to 13.	0	0 ADRC
FF-2007-00009-LXA	Floods	2007/01/13	Sri Lanka		0	0 ADRC

23

Site Photo Upload (3)

The screenshot shows the Disaster Management Support System interface for a specific disaster event. A red circle highlights the 'Add new image' button, and a blue arrow points to it with the text 'Click Add New Image'.

Disaster Details

GLIDE Number: 15-2007-00042-10E

Event: Tsunami
Duration: 2007/04/02
Country or District: Solomon Islands

On April 02, 2007, at least three people were reported to have died in the Solomon Islands following a powerful earthquake (Magnitude 8.1).

Related Recent Photos

Thumbnail	Date/Provider/Title	Comments
	2007/04/15 adrc Suva, Gizo Island	Only one house remained
	2007/04/15 adrc Suva, Gizo Island	
	2007/04/15 adrc Vorivori, Gizo Island	

Related Satellite Images

Thumbnail	Observation Date/Provider	Satellite	Sensor	Product	Comments
	2007/04/07 23:38:00 AVIA	ALOS	AVNR-2, LTB2	ALOS/AVNR-2, Solomon Islands, E	

24

Site Photo Upload (4)

Disaster Management Support System

GLIDE: TD-2007-00042-01B

Photo:

Title:

Provider:

Comment [English]:

Comment [Japanese]:

Click Register

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25

Contribution to Web Forum (1)

Sentinel Asia
Disaster Management Support System in the Asia Pacific Region

Recent Disasters and Emergency Observation

Wildfire Monitoring

Flood Monitoring

Capacity Building

Welcome to Sentinel Asia Web Site

CLICK Web Forum

26

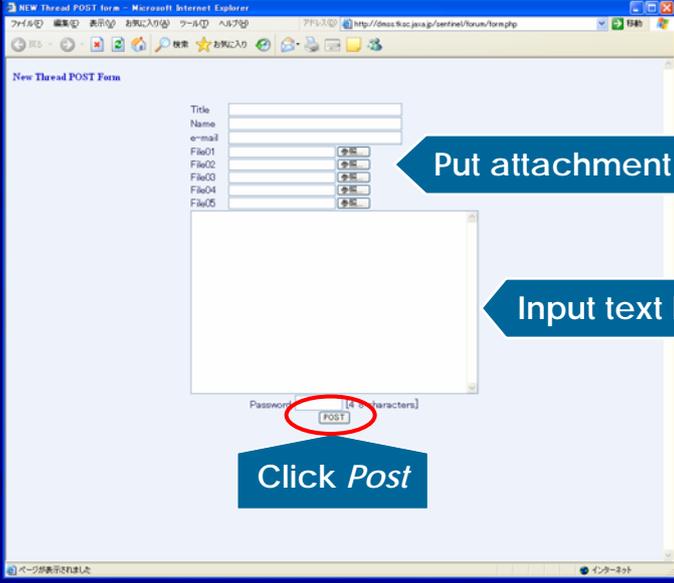
Contribution to Web Forum (2)

27

Contribution to Web Forum (3)

28

Contribution to Web Forum (4)



The screenshot shows a web browser window titled "NEW Thread POST form - Microsoft Internet Explorer". The address bar shows the URL "http://dmsa.fiac.jaxa.jp/sentinel/forum/form.php". The form is titled "New Thread POST Form" and contains the following fields:

- Title:
- Name:
- e-mail:
- File01:
- File02:
- File03:
- File04:
- File05:
- Message:
- Password: [40 characters]

Annotations on the screenshot include:

- A blue arrow pointing to the File01-05 fields with the text "Put attachment hear".
- A blue arrow pointing to the Message field with the text "Input text hear".
- A red circle around the "POST" button, with a blue arrow pointing to it and the text "Click Post".

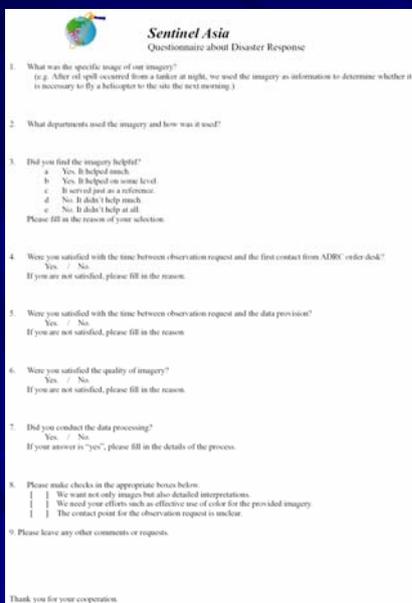
29

(4) Key Words for the Success of Sentinel Asia for Disaster Reduction



20

Questionnaire on Emergency Observation



Sentinel Asia
Questionnaire about Disaster Response

- What was the specific image of our imagery?
(e.g. After oil spill occurred from a tanker at night, we used the imagery as information to determine whether it is necessary to fly a helicopter to the site the next morning.)
- What departments used the imagery and how was it used?
- Did you find the imagery helpful?
 - Yes. It helped much.
 - Yes. It helped on some level.
 - It served just as a reference.
 - No. It didn't help much.
 - No. It didn't help at all.
 Please fill in the reason of your selection.
- Were you satisfied with the time between observation request and the first contact from ADRC "order desk"?
Yes / No.
If you are not satisfied, please fill in the reason.
- Were you satisfied with the time between observation request and the data provision?
Yes / No.
If you are not satisfied, please fill in the reason.
- Were you satisfied the quality of imagery?
Yes / No.
If you are not satisfied, please fill in the reason.
- Did you conduct the data processing?
Yes / No.
If your answer is "yes", please fill in the details of the process.
- Please make checks in the appropriate boxes below:

<input type="checkbox"/>	<input type="checkbox"/>	We want not only images but also detailed interpretations.
<input type="checkbox"/>	<input type="checkbox"/>	We need your efforts such as effective time of color for the provided imagery.
<input type="checkbox"/>	<input type="checkbox"/>	The correct point for the observation request is unclear.
- Please leave any other comments or requests.

Thank you for your cooperation.

Please let us have your opinion on:

- Where and how the image was used
- Was the image useful for your purpose
- Were you satisfactory with the response, image, etc.
- Did you conduct the data processing
- Any comments, requests and recommendations

31

Responses to the Questionnaire

No.	Questionnaire	Response	
		No.1	No.2
1	What was the specific way of data use?	The data was intended to enable a preliminary assessment of the extent of damage	The local government has used the image among other to see the affected/damaged areas
2	What departments used the image and how is it used?	Space and Disaster Management Agencies	Government institutions and Universities Mass media website
3	Did you find the data helpful?	It served just as a reference. The extent of damage was difficult to evaluate from the imagery	It helped much for Flood and on some level for earthquake
4	Are you satisfied with the time between your observation request and the first contact from ADRC?	Yes. The service provided was excellent	Yes
5	Are you satisfied with the time between your observation request and the data provision?	Yes	Yes
6	Are you satisfied with the quality of images?	Yes. Cloud cover made the initial AVNIR2 unsuitable but subsequent PALSAR and AVNIR2 provided a satisfactory coverage	Not really. Because the spatial resolution is too coarse to see the affected/damaged areas
7	Did you conduct the data processing?	No	Yes, such as adding the administrative boundaries, cities, latitude-longitude, etc
8	Please make checks in the appropriate boxes below	We wanted not only images but also detailed interpretations	We wanted not only images but also detailed interpretations. We prefer more efforts such as effective use of color.
9	Please leave any comments or requests		Our request for the data format is at least GeoTiff

32

Key Words for the Success of Sentinel Asia (1)

- Providing comprehensive disaster information, e.g. disaster monitoring and damage assessment making use of remote sensing technology and local GIS data, to meet different requirements in decision-making for prevention, emergency response and reconstruction
- Combining with communication technology for real-time disaster information sharing bi- and/or multi-directionally between data providers and end users
- Cooperating with other initiatives, such as International Charter, to extend and enhance its capability



33

Key Words for the Success of Sentinel Asia (2)

- Cooperation among all concerned organizations
 - * Sharing local GIS and social data, if available
 - * Sharing real time disaster information including photos, videos, etc.
 - * Sharing technology and good practice related to the application of space technology in disaster reduction
- Capacity building
 - * Emergency observation request rehearsal
 - * JAXA training course (for details, visit SA Website)
 - Time: August
 - Venue: Bangkok, Thailand
 - Deadline of application: June 30, 2007



34

SUMMARY

- Sentinel-Asia is an internet-based Web-GIS platform providing integrated disaster information, wildfire and flood monitoring and emergency observation after a large-scale disaster for both ADRC member countries and JPT participants based on the best-effort and voluntary initiatives
- It could be used for different purposes for disaster management especially when it is combined with local GIS and social information. Its function could be further extended and enhanced in the future



35

THANK YOU VERY MUCH



36