Introduction of Sentinel Asia - a Web-GIS Platform for Disaster Management -

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Background

- **APRSAF-11, Nov 2004, Australia, agreed that a coordinated rapid-response pilot project should be developed for effective disaster reduction in Asia-Pacific region**
- **APRSAF technical WS: "Disaster Reduction through Effective Space Technology Utilization in the Asia Pacific Region", held in May 2005, Malaysia, discussed the pilot project plan**
- **APRSAF-12, Oct 2005, Japan, approved the plan and initiated the pilot project**
- **The 1st Joint Project Team Meeting, Feb 2006, Vietnam, discussed the project implementation plan and JPT membership.**

(APRSAF: Asia-Pacific Regional Space Agency Forum)

Framework

Voluntary and best-efforts-basis initiative by participating organizations and cooperation among APRSAF, ADRC, Digital Asia and international organizations

Space Community

APRSAF*

Content

Satellite Image

Promotion of Utilization

Capacity Building

* Asian-Pacific Regional Space Agency Forum

International Community

UN / ESCAP UN / OOSA
ASEAN AIT etc.

International Cooperation

Sentinel Asia

Joint Project Team (JPT)

Join Project Team consists of total 51 organizations including 44 agencies from 18 countries and 7 international organizations as of July 2006.

Digital Earth / Web-GIS Community

Digital Asia

Information Sharing Platform

Web-GIS
Data / Meta Data Management

Content

Digital Map
Social / Economic Data
Satellite Image

Disaster Reduction Community

ADRC**
Member Countries

Content

Disaster Information

Utilization (User)

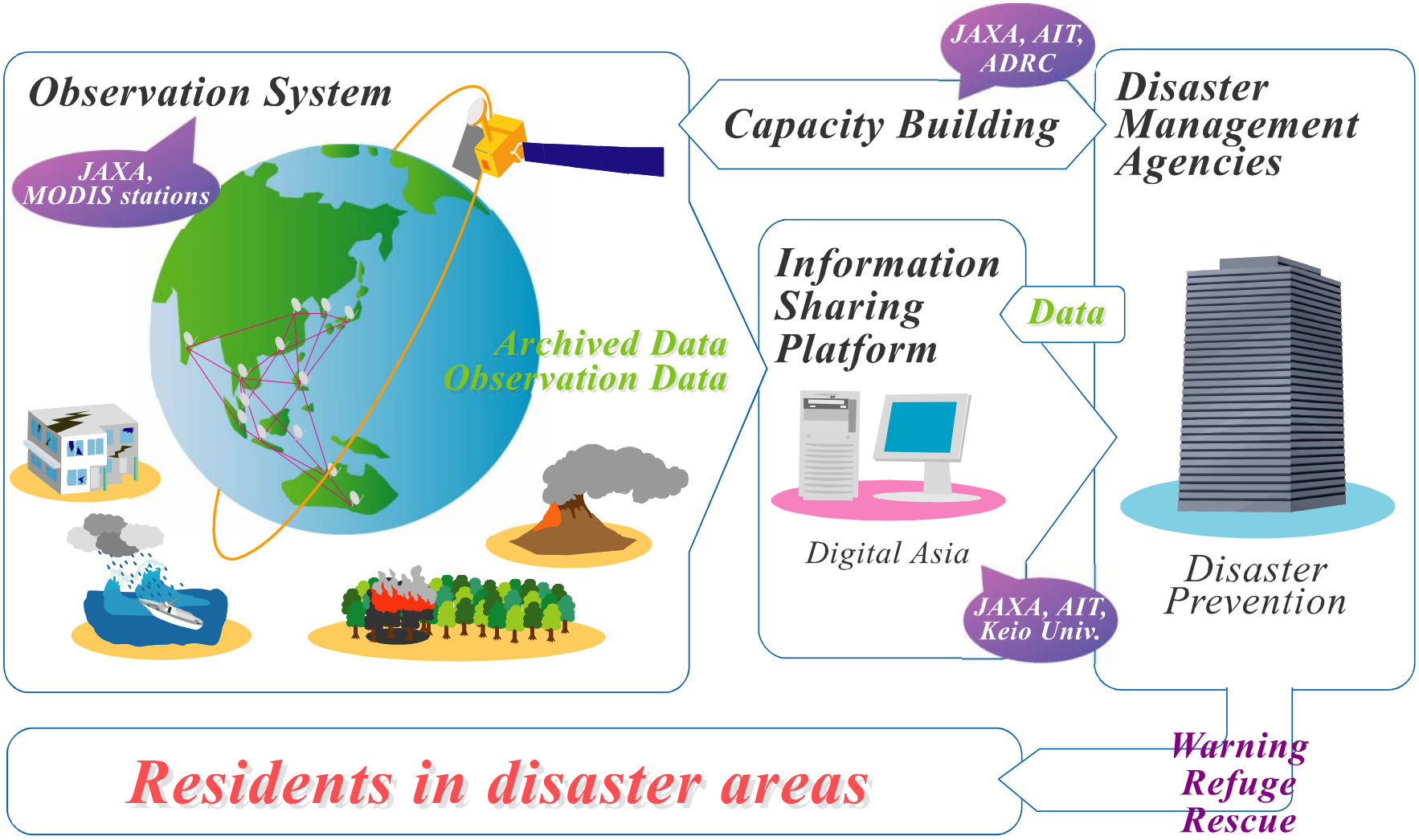
** Asian Disaster Reduction Center

Main Activities

- **Emergency observation** in case of major disasters by ALOS and other available resources for ADRC members and JPT space agencies
- **Wildfire monitoring** by MODIS
- **Flood monitoring** by TRMM and AMSER-E
- **Capacity-building** for utilization of satellite images for disaster management

Accept emergency observation from October 24, 2006

Overall Flow



Data Interface

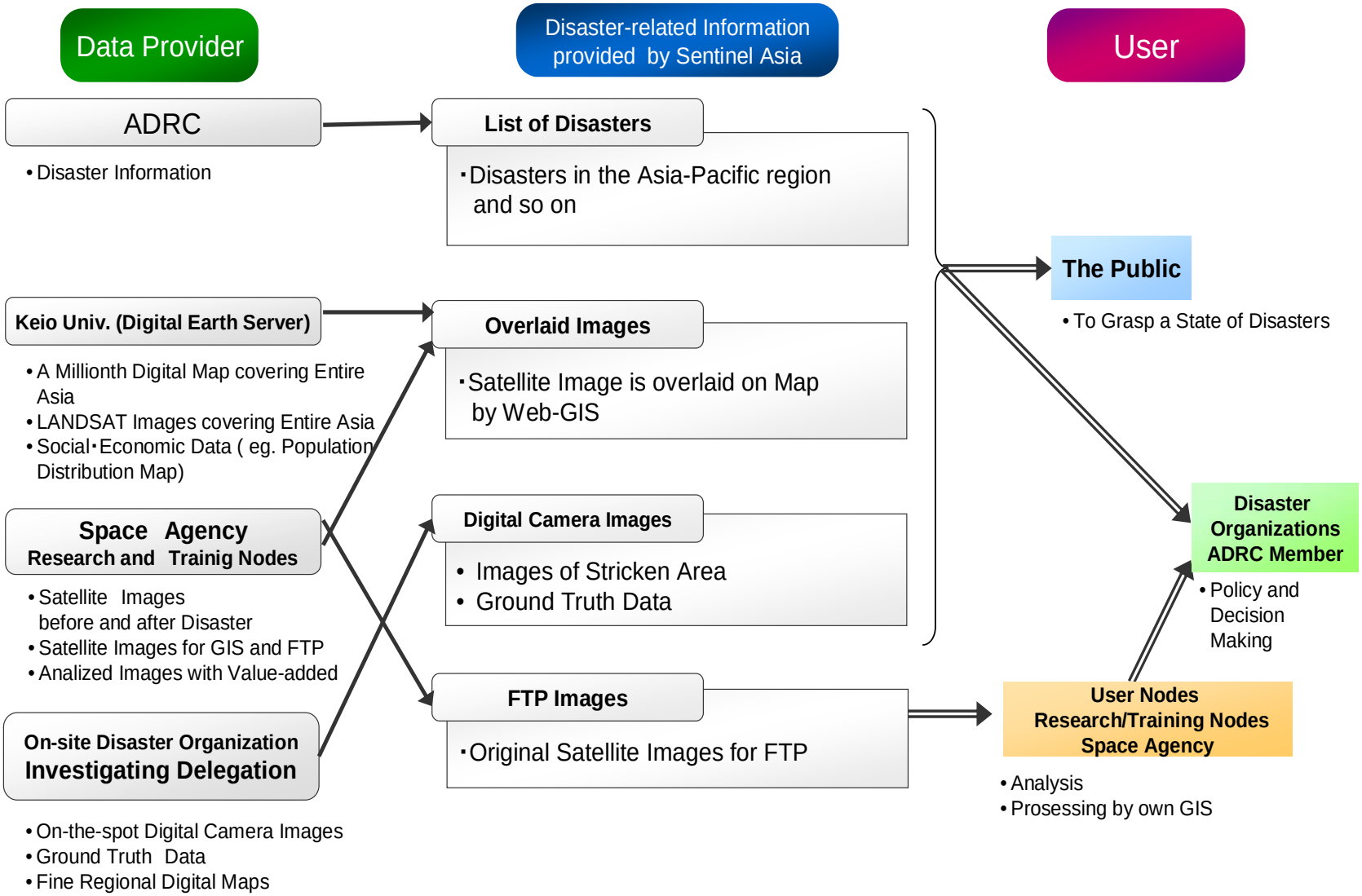
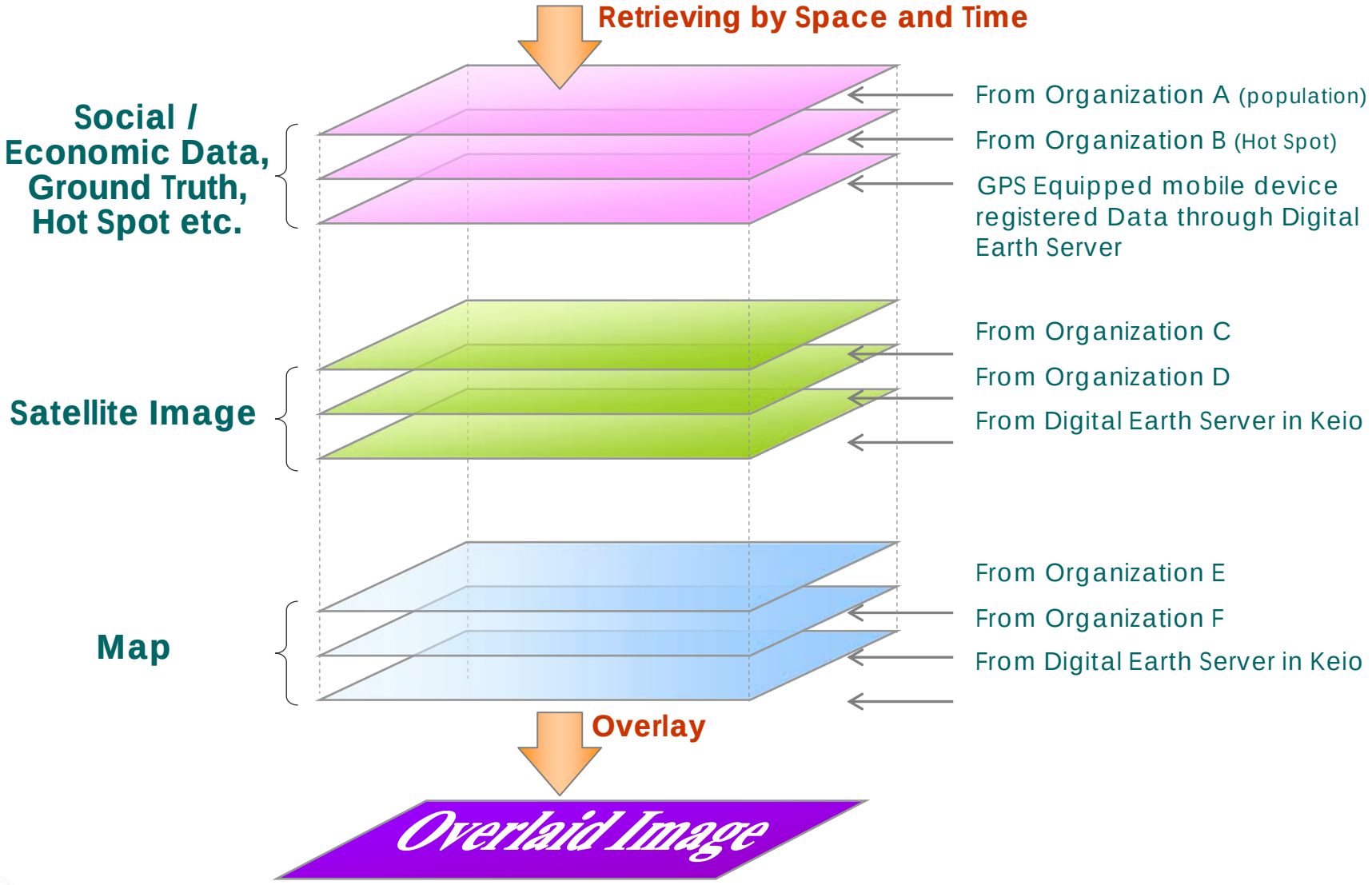


Image of Data Processing



Operation Flow of ALOS Observation

Asia Disaster Management Agencies
(ADRC member countries and JPT space agencies)

Disaster !

Request

ADRC
(Asian Disaster Reduction Center)

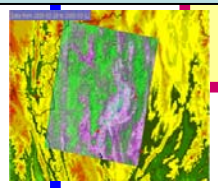
Information Desk

ADRC's Disaster Information

Integrated Disaster Information

GIS service with Satellite Image (for Public)

Internet Access

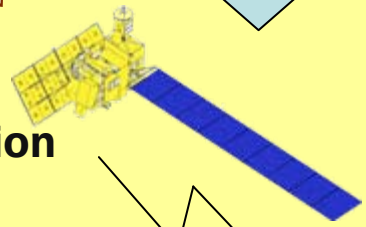


Satellite Raw Data and Images
(for registered users)

Making use of a Web-GIS platform developed by "Digital Asia" project
(lead by Keio Univ.)

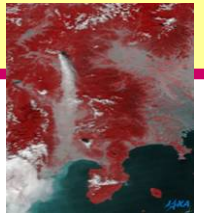
JAXA

Satellite observation planning



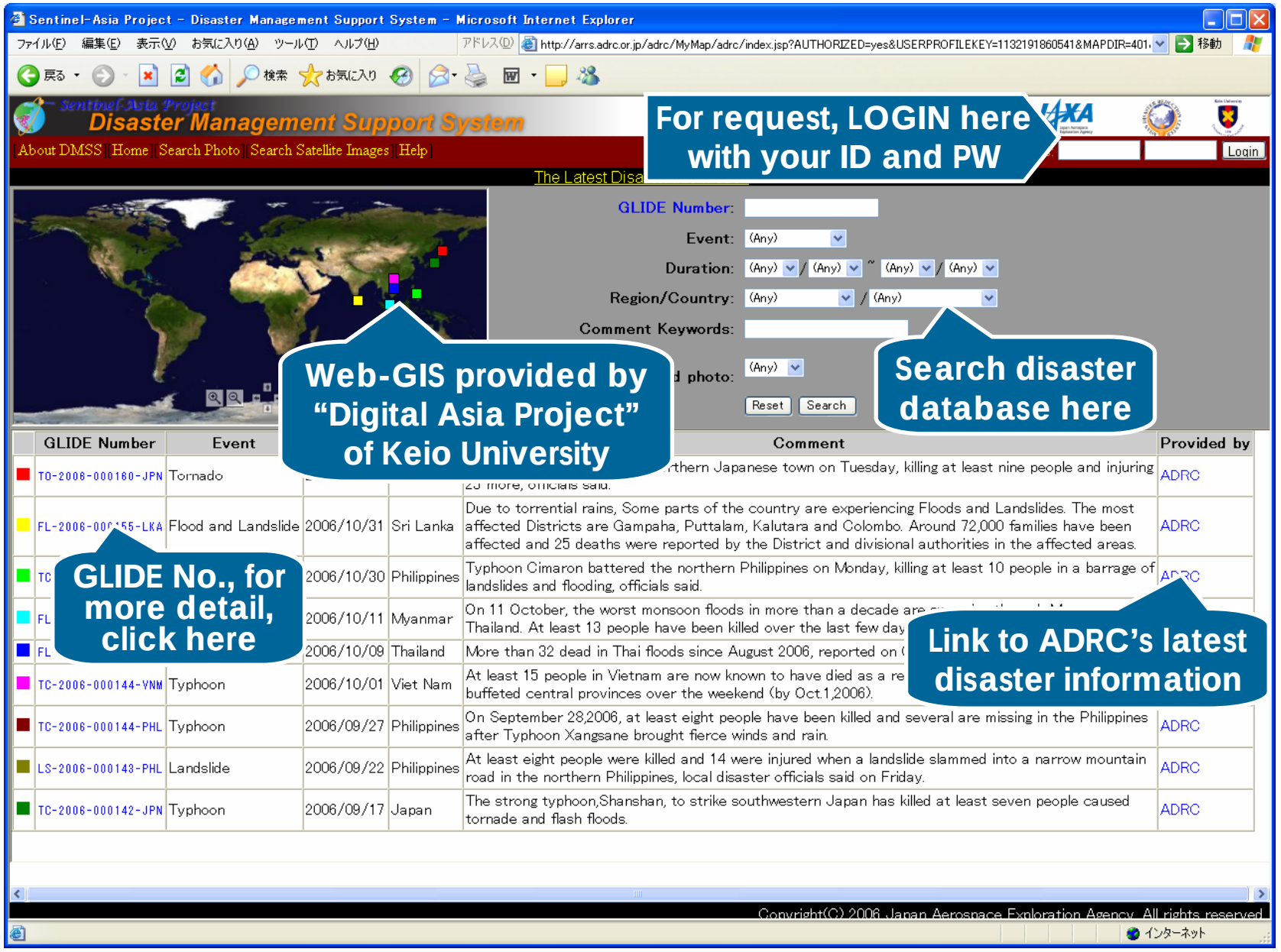
Disaster Observation by ALOS

Remote-Sensing by JAXA



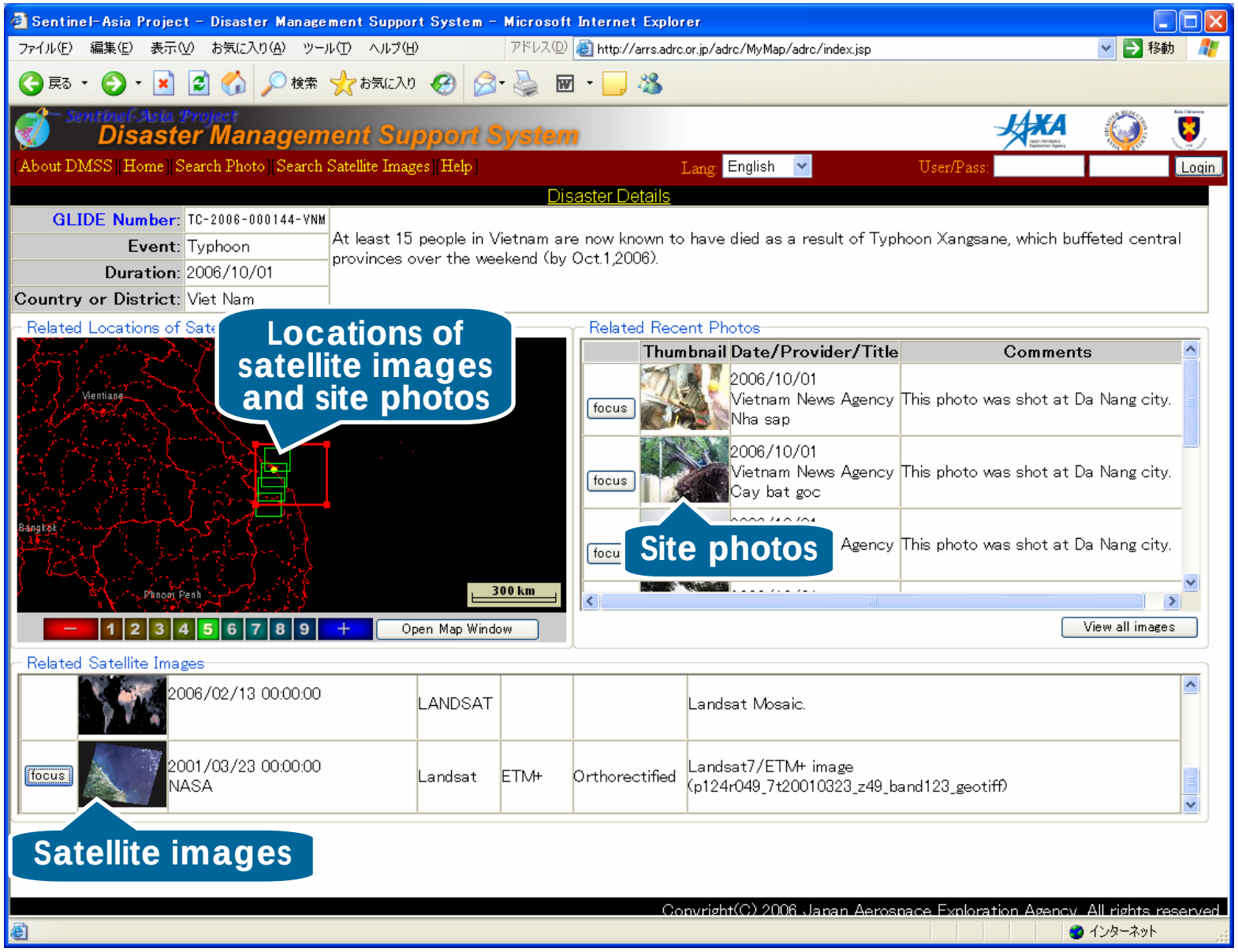
http://dmss.tksc.jaxa.jp/sentinel/index.php

View Archived Disaster Information

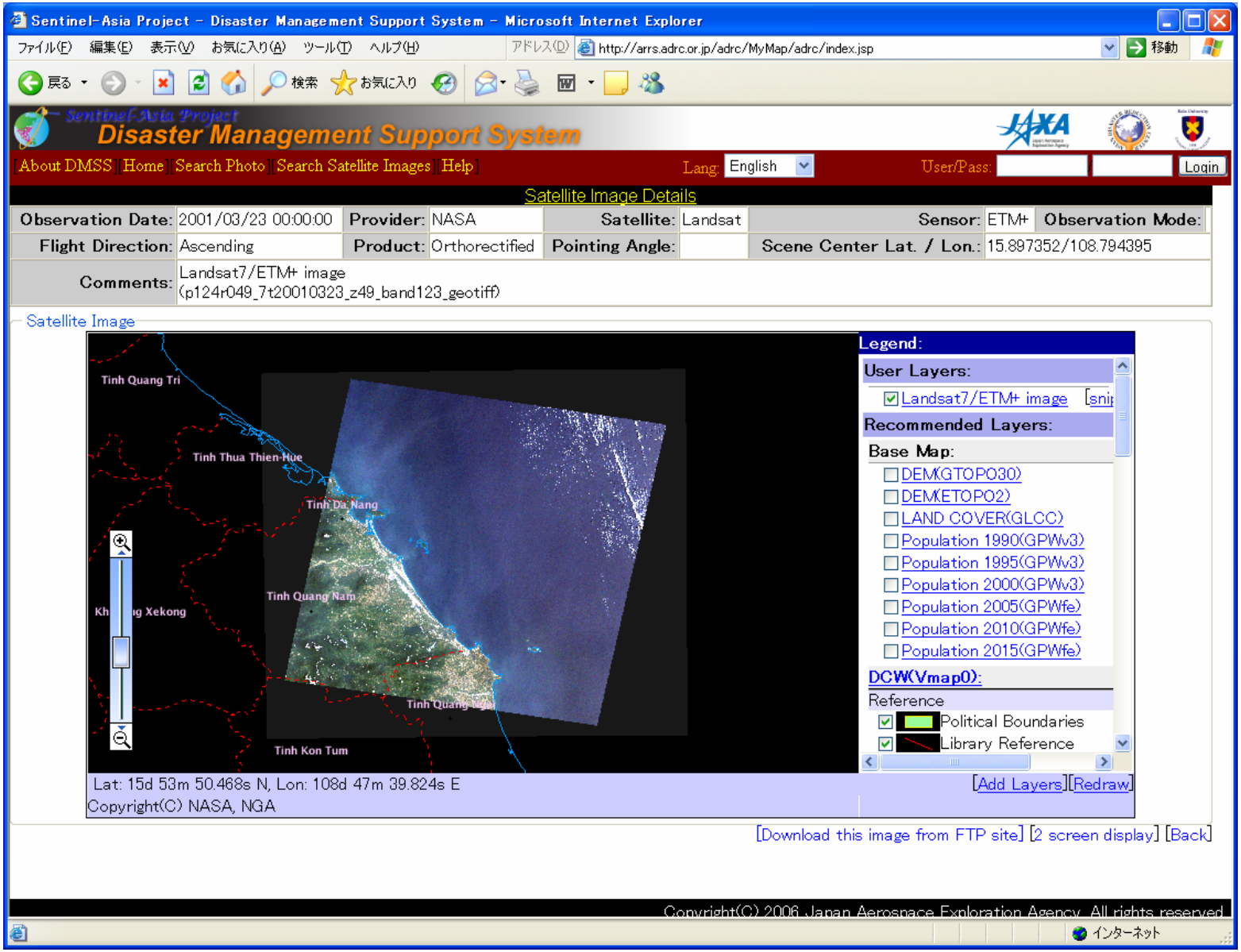


	GLIDE Number	Event			Comment	Provided by
	TO-2006-000160-JPN	Tornado			...rthern Japanese town on Tuesday, killing at least nine people and injuring ...more, officials said.	ADRC
	FL-2006-000155-LKA	Flood and Landslide	2006/10/31	Sri Lanka	Due to torrential rains, Some parts of the country are experiencing Floods and Landslides. The most affected Districts are Gampaha, Puttalam, Kalutara and Colombo. Around 72,000 families have been affected and 25 deaths were reported by the District and divisional authorities in the affected areas.	ADRC
	TC		2006/10/30	Philippines	Typhoon Cimaron battered the northern Philippines on Monday, killing at least 10 people in a barrage of landslides and flooding, officials said.	ADRC
	FL		2006/10/11	Myanmar	On 11 October, the worst monsoon floods in more than a decade are ... Thailand. At least 13 people have been killed over the last few day	
	FL		2006/10/09	Thailand	More than 32 dead in Thai floods since August 2006, reported on (	
	TC-2006-000144-VNM	Typhoon	2006/10/01	Viet Nam	At least 15 people in Vietnam are now known to have died as a re ... buffeted central provinces over the weekend (by Oct.1,2006).	
	TC-2006-000144-PHL	Typhoon	2006/09/27	Philippines	On September 28,2006, at least eight people have been killed and several are missing in the Philippines after Typhoon Xangsane brought fierce winds and rain.	ADRC
	LS-2006-000143-PHL	Landslide	2006/09/22	Philippines	At least eight people were killed and 14 were injured when a landslide slammed into a narrow mountain road in the northern Philippines, local disaster officials said on Friday.	ADRC
	TC-2006-000142-JPN	Typhoon	2006/09/17	Japan	The strong typhoon,Shanshan, to strike southwestern Japan has killed at least seven people caused tornade and flash floods.	ADRC

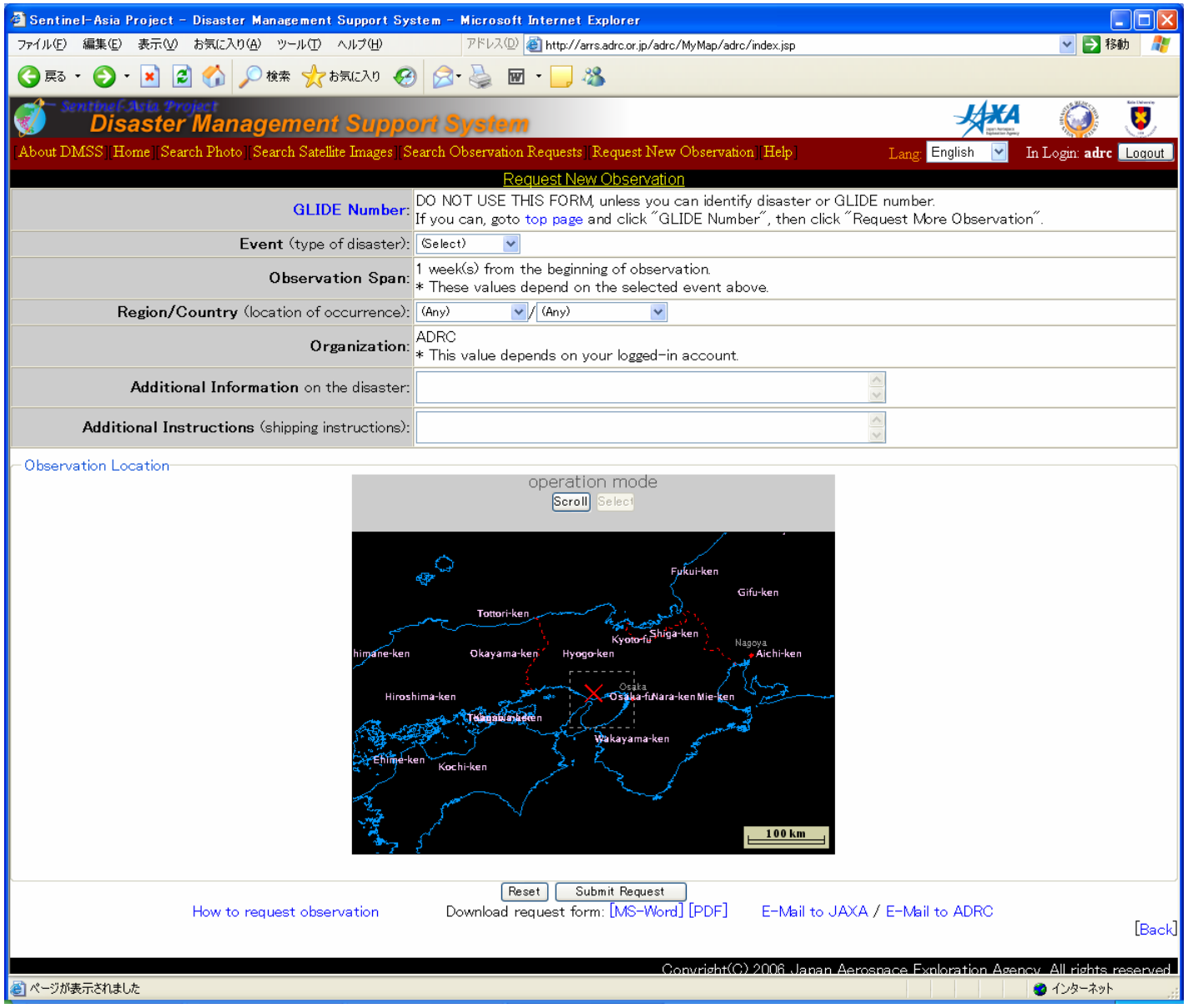
Detail Information of a Disaster



Satellite Disaster Image



Request for Emergency Observation



Provisions for Emergency Observation

- ADRC counterpart organizations and space agencies of JPT are eligible to request for the emergency observation by ALOS (ID and PW required)
- Apply to any kind of large-scale natural disasters
- The result is provided free-of-charge and no commercial use is allowed for provided observation data and images

Limitations of Sentinel Asia

- Best-effort based system: request may not be accepted and the quality of the result is not guaranteed
- It may take time from request to data dissemination due to the position of the satellite and weather condition
- Remote sensing technology may be necessary for accurate damage estimation
- Archived data are not always available when the damage estimation requires

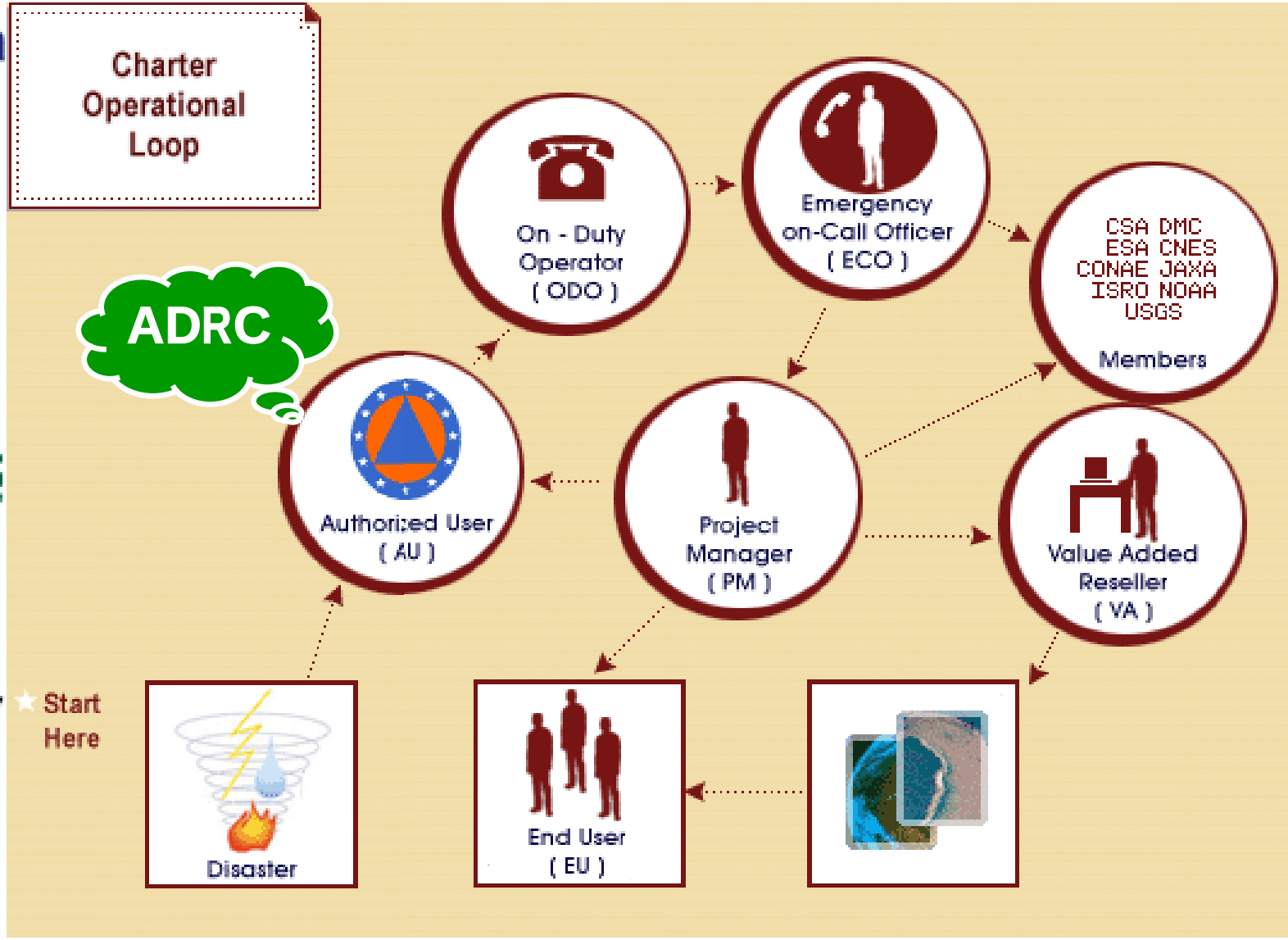
Aiming for a Higher Performance (1)

- **Reduce time interval from observation request to data dissemination**
  - **JPT organizations who has earth observing satellite are welcomed to provide emergency observation**
  - **Cooperation with other initiatives (International Charter, etc.)**
- **Development of higher-resolution sensor for next generation of satellite**
- **Accumulation of archive data**

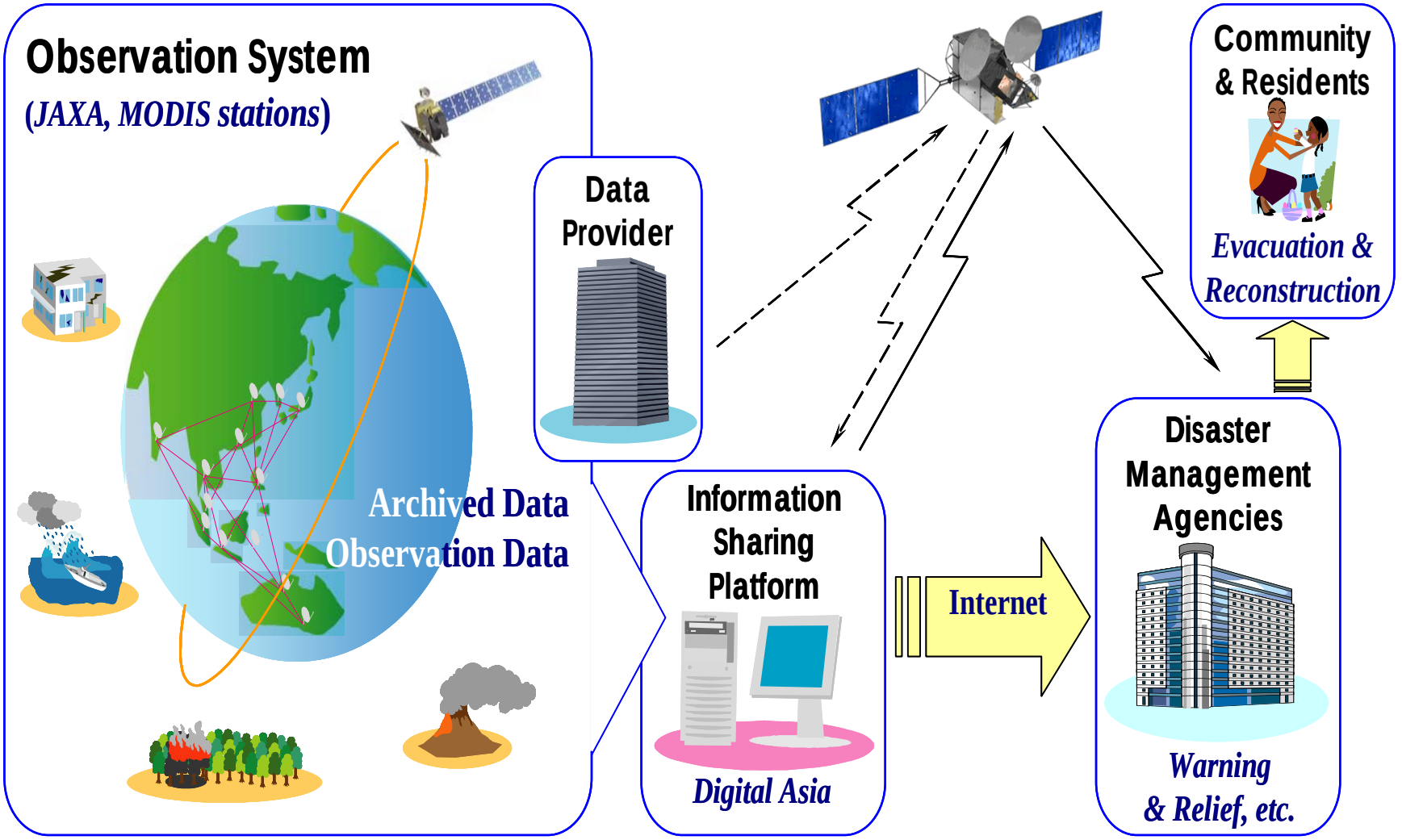
Aiming for a Higher Performance (2)

- **Development of remote sensing technology and damage estimation algorism**
  - To provide different kinds of information to satisfy various requirement of disaster management
- **Combination with information communication technology to improve Internet environment**
  - To utilize WINDS (Wideband Internetworking Engineering Test and Demonstration Satellite) from 2008

Joining International Charter



Combining with Communication Satellite



SUMMARY

- Sentinel-Asia was a internet-based Web-GIS platform providing disaster information in the Asia-Pacific region under cooperation among APRSAF, ADRC, Digital Asia and international organizations based on best-efforts and voluntary initiatives
- Accepts emergency disaster observation by ALOS at present after a large-scale disaster and the wildfire and flood monitoring will function soon
- It could be a useful tool for disaster management especially when it is combined with local GIS, social and economic information
- Utilization of communication satellite is expect to speed or enable real time disaster information exchange between the data providers and the end users

Thank you for your attention