
JAXA's Capacity Building Activities for Asia-Pacific Region

5 October 2010

Yoko INOMATA

Space Applications and Promotion Center (SAPC)
Japan Aerospace Exploration Agency (JAXA)

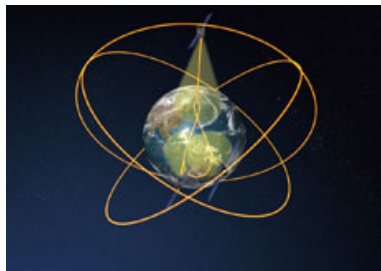
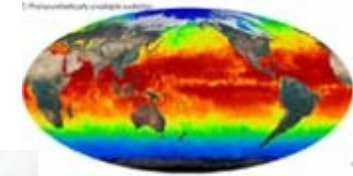
<http://www.jaxa.jp>



JAXA's Principal Activities

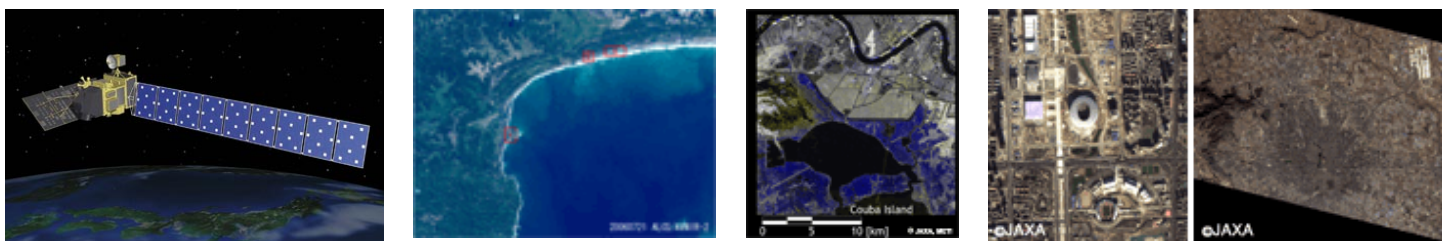


- ★ Space Transportation Systems
- ★ Human Space Activities
- ★ Satellites & Spacecraft
- ☆ Space Utilization with Satellites
- ★ Space Science Research
- ★ Basic Technology Research
- ★ Aviation Program



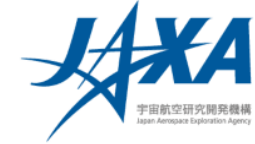
Objectives of JAXA's Capacity Building Activities

1. *To provide necessary technical know-how to RS & GIS users in the Asia-Pacific region as a contribution by the Government of Japan to the capacity building activities recognized by UNWSSD, UNWCDR, EO Summit, GEOSS and CEOS;*
2. *To use the Japanese satellite data archived for last 30 years for sustainable development, planning and monitoring purposes in the region;*



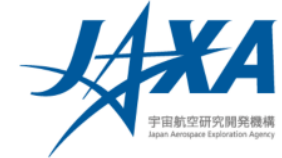
3. *To develop in-house capacities of prospective users in the region by working on project-based training programs;*
 4. *To identify future space technology needs in the region for better services of the forthcoming Japanese satellite programs.*
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JAXA's Present Capacity Building Activities



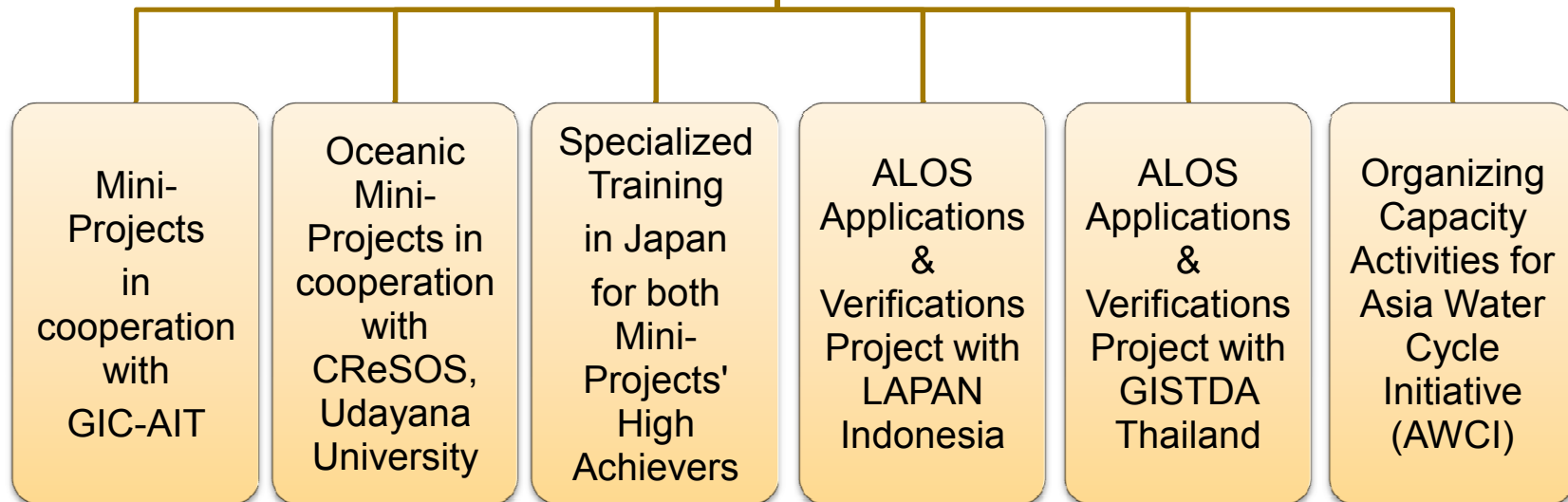
- (1) Mini-Projects in cooperation with GIC-AIT (Bangkok);
 - (2) Oceanic Mini-Projects in cooperation with CReSOS, Udayana University, (Island of Bali, Indonesia);
 - (3) Specialized Training in Japan for Mini-Projects' and Oceanic Mini-Projects' High-Achievers;
 - (4) ALOS Applications & Verifications Project with LAPAN Indonesia;
 - (5) ALOS Applications & Verifications Project with GISTDA Thailand; and
 - (6) Supporting Capacity Building Activities for Asia Water Cycle Initiative (AWCI) in cooperation with University of Tokyo, ICHARM/PWRI, etc.
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Structure of JAXA's Present Capacity Building Activities



JAXA-initiated projects, such as Sentinel Asia, SAFE (Space Applications for Space Environment), etc.

The following capacity building activities are supporting these initiatives using satellite data.



JAXA's Present Capacity Building Activities for the Asia-Pacific Region

*(1) Mini-Projects
in cooperation with
GIC-AIT*

16-Year History of JAXA's Capacity Building Activities in cooperation with GIC-AIT

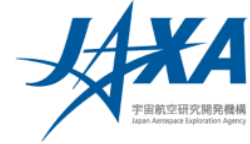
- 1. For last 16 years starting from April 1995, JAXA has been entrusting a responsibility to the Geo-Informatics Center, Asian Institute of Technology (GIC-AIT) in Bangkok, to carry out various training programs mainly focusing on RS and GIS for the Asia-Pacific nations.*
- 2. The contents of the training programs were sometimes changed by the needs of the times. For last several years, JAXA and GIC-AIT concentrate on the Mini-Projects, a problem-solving type of training program.*

External Appearance of GIC-AIT

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Outline of JAXA's Capacity Building Activities in cooperation with GIC-AIT



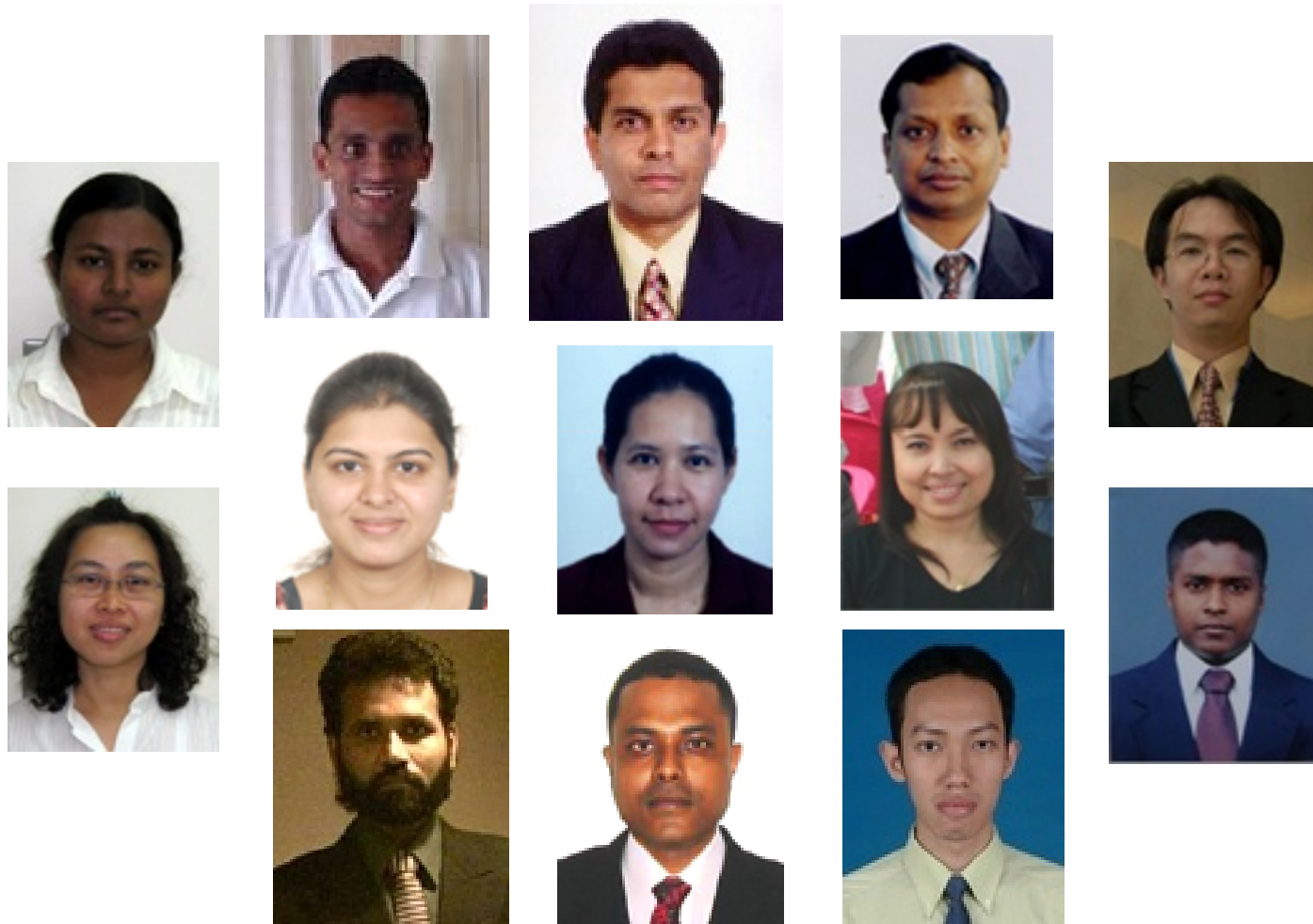
1. Number of Trainees (JFY1995 ~ 2010):

About 1,300 from 27 countries of the Asia-Pacific region

2. Staff of GIC-AIT:

There are usually 12 to 15 Asian personnel including lecturers and administrative staff

GIC-AIT Staff for Mini-Projects

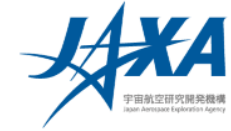


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Scenes from Past Mini-Projects



JFY2010 Mini-Project Selection-Results



1. ***During May and June 2010, JAXA and GIC-AIT received 21 theme-proposals from 36 organizations of 12 Asian countries through their websites.***

2. ***In August 2010, JAXA finally selected 9 themes as its 2010 Mini-Projects based on the following criteria:***



3. ***The 1st and 2nd phases of the JFY2010 Mini-Projects are carried out at GIC-AIT according to the following schedule:***

(1st Phase: 4 weeks in Oct. 2010)

(2nd Phase: 4 weeks from Jan. to Feb. 2011)

(Field Work: 1-week at each participating country from Nov. and Dec. 2010)



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9 Mini-Projects Selected for 2010 (Themes No.1-5) (16 Participants of 16 Organizations from 9 Countries)

1. Bhutan: Landslides (1 participant)

(1) Department of Geology and Mines,
Ministry of Economic Affairs



2. Indonesia: Floods (2 participants)

(1) Indonesian Agroclimate and Hydrology Research Institute
(2) Tirta II Public Corporation (PJT II)



3. Kyrgystan: Landslides (1 participant)

(1) Central Asian Institute for Applied Geosciences



4. LaoPDR : Drought (2 participant)

(1) Water Resources and Environment Research Institute (WERI),
Water Resources and Environment Administration (WREA)
(2) National Agriculture and Forestry Research Institute



5. Nepal: Japanese Encephalitis (2 participants)

(1) Bhim Hospital
(2) Climate Change Adaptation and Mapping Group



9 Mini-Projects Selected for 2010 (Themes No.6-9) (16 Participants of 16 Organizations from 9 Countries)

6. Pakistan: Habitat Evaluation of Western Horned Tragopan ***(2 participants)***

(1) WWF-Pakistan

(2) Ministry of Environment (MoE)



7. Sri Lanka: Floods and Landslides (2 participants)

(1) Irrigation Department of Sri Lanka

(2) Survey Department of Sri Lanka



8. Thailand: Assessing Impact of Urbanization (2 participants)

***(1) Department of Geography, Faculty of Social Sciences,
Chiang Mai University***

(2) Royal Irrigation Department, Regional Office 1



9. Vietnam: Coastal Erosion Management (2 participants)

***(1) Space Technology Institute (STI),
Vietnam Academy of Science and Technology (VAST)***

(2) Institute of Marine Geology and Geophysics (IMGG),

Vietnam Academy of Science and Technology (VAST)



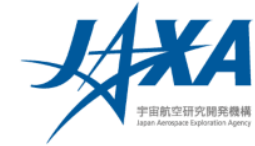
Classification of Mini-Projects by Themes (6 Years of 2005-2010)



No.	Type of Themes (13)	Year					Total by Theme
		JFY 2009	JFY 2008	JFY 2007	JFY 2006	JFY 2005	
1	Flood & Cyclone	4	4	5	5	4	22
2	Landslide	1	1		3	2	7
3	Drought / Land Degradation	1	2		1		4
4	Mapping		1	1		1	3
5	Coastal Zone Management/ Sea Level Rise	1	1			1	3
6	Land Use & Land Cover Change	2					2
7	Forest Fire		1	1			2
8	GIS Data-base / Web-GIS		1	1			2
9	Earthquake	1				1	2
10	Tsunami			1			1
11	Volcano			1			1
12	Wild Life Conservation	1					1
13	Soil Erosion	1					1
Total by Year		12	11	10	9	9	51

The overwhelming majority of disasters in Asia are floods and cyclones!!!

Mini-Project Participants with JAXA Lecturer in 2008



**With a JAXA
researcher as
one of the
lecturers for
the JFY2008
Mini-Projects**

JAXA's Present Capacity Building Activities for the Asia-Pacific Region

*(2) Oceanic Mini-Projects
in cooperation with
CReSOS, Udayana University*

Oceanic Mini-Projects Newly Started at Indonesian Udayana University from JFY2009



JAXA newly started to entrust a responsibility to carry out the two(2) Oceanic Mini-Projects to the Center for Remote Sensing & Ocean Sciences (CReSOS) - Udayana University located on the Indonesian island of Bali from the JFY2009. The following two organizations are participating in both of the 2009 Oceanic Mini-Projects as below:

Participating Agencies:

- (1) Indonesian National Institute of Aeronautics and Space (LAPAN)*
- (2) Ministry for Marine Affairs and Fisheries (DKP)*

Mini-Project Themes:

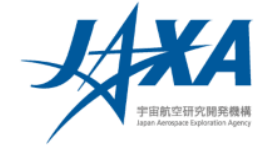
- (1) Study of Coral Reef and Mangrove Distribution from Satellite Data*
- (2) Study of Climate Change Monitoring using Satellite Data and Data Archive System in Indonesia*

External Appearance of Udayana University, Bali Island, Indonesia



@ Udayana University

11 Themes of 2010 Oceanic Mini-Projects at Udayana University



Organizations	Themes
Climatology Meteorology and Geophysics Agency (1)	Prediction of Monthly Rainfall Based On the TRMM Precipitation Radar Satellite Data Over Region of Indonesia
Ministry of Marine Affairs and Fishers (1)	Environmental Preferences of Big eye Tuna From Oceanographic Satellite in Indian Ocean Southern Java, Bali
Ministry of Marine Affairs and Fishers (2)	Study of Marie diversity using High Resolution satellite data
Ministry of Marine Affairs and Fishers (3)	Study of Marie diversity using High Resolution satellite data
Diponegoro University (1)	Costal Monitoring using Satellite data in Indonesia
Bogor Agricultural University (1)	Study of Fishery Resources in Indonesia
Udayana University (1)	Using Medium Spatial Resolution Satellite Imagery to Estimated Gross Primary Production in Urban Area
Udayana University (2)	Study of Upwelling process in south East java using satellite data and numerical model
Ministry of Environment Agency Bali	Detecting oil spill in south Timor sea using satellite data
NGO ABDI BUMI (Environment Field)	Application of ALOS Pan-Sharpen Data to identify Coral Reef Distribution in Lembongan Coastal Area
Fishery Senior High School Majen (Ministry of National Education)	Study of Fish Production from satellite in Timur Sea

JAXA's Present Capacity Building Activities for the Asia-Pacific Region

*(3) Specialized Training in Japan
for Mini-Projects' & Oceanic
Mini-Projects' High Achievers*

2010 Specialized Training in Japan for both Mini-Projects' High Achievers



From the JFY2008, JAXA started to invite once a year some of the high achievers of the Mini-Projects both in Thailand and Indonesia to Japan in order to let them have another training opportunity in their respective fields in cooperation with some institutes and universities in Japan.

Specialized Training in Japan for both Mini-Projects' High Achievers



Seven Cooperation Organizations for 17 Invitees (2008-2010) in Total are as below:

(1) University of Tokyo (UT)



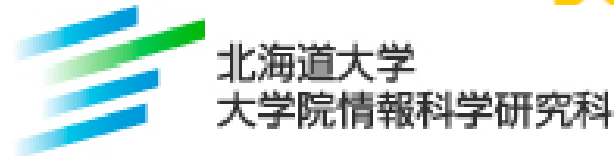
(2) Kyoto University



(3) Keio University



(4) Hokkaido University



(5) United Nations University



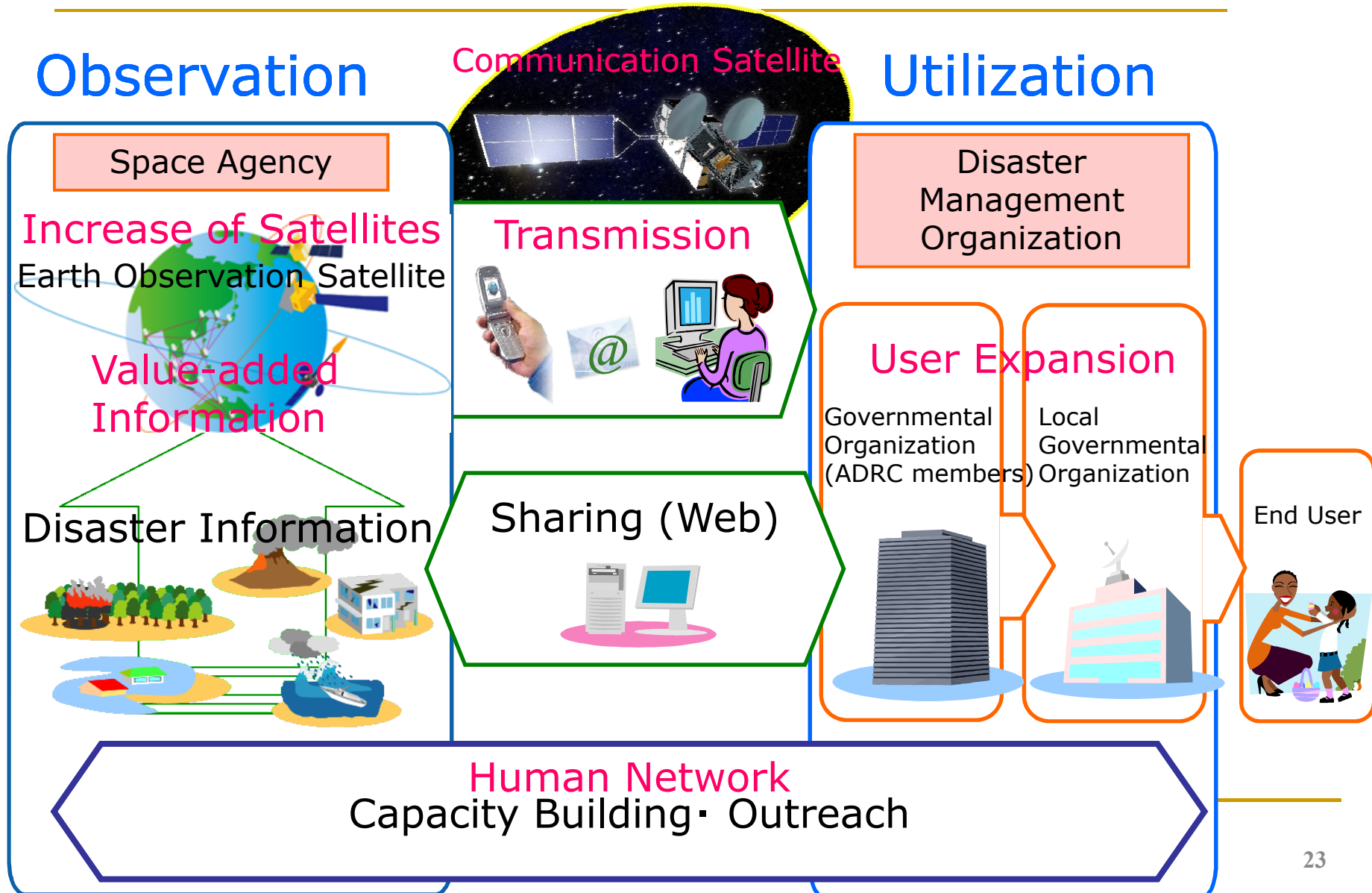
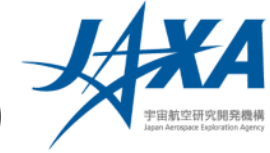
(6) Yamaguchi University



(7) International Centre for Water Hazard and Risk Management (ICARM) under the auspices of UNESCO operated by an independent administrative institution so-called Public Works Research Institute (PWRI) of Japan

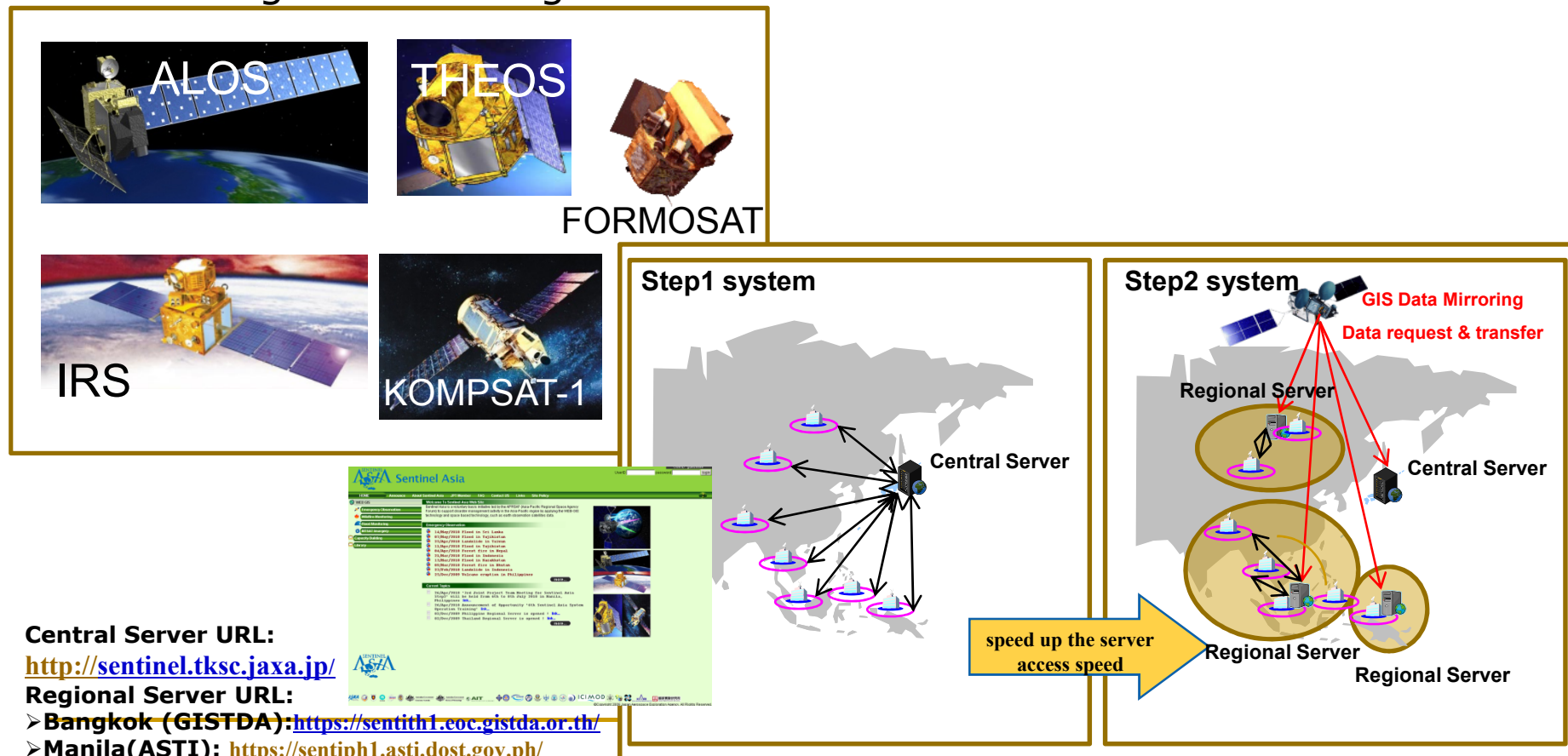
Sentinel Asia initiated by JAXA

Activities of Sentinel Asia (Concept)

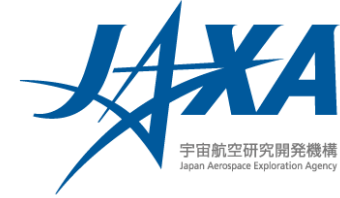


Activities of Sentinel Asia

- 5 earth observation satellites are participating in Sentinel Asia.
- To improve the accessibility of information provided by Sentinel Asia, Sentinel Asia utilizes high speed communication satellite 'WINDS' for sending a data to regional server.



Sentinel Asia System Operation Training



- 1. In order to convey how to operate Sentinel Asia system and how to utilize earth observation satellite data, JAXA has so far held the Sentinel Asia System Operation Training for 6 times.**
- 2. Especially for new Step-2 system, the 6th training was held in Bangkok, Thailand during 19th and 23rd July 2010 in cooperation with GISTDA, and the 7th training will be held at Kathmandu, Nepal, during February or March 2011 with ICIMOD.**
- 3. In these training sessions, JAXA explains through lectures how to use new Step-2 system including the activation of Emergency Observation. Lectures and hands-on training for the utilization of earth observation satellite data are made by the lecturers from Data Provider Nodes and Data Analysis Nodes.**

6th Sentinel Asia System Operation Training



The 6th Sentinel Asia System Operation Training was held in Bangkok, Thailand, during July 2010 in cooperation with GISTDA. 20 trainees from 12 countries and a dozen trainees from Thailand participated in this training:



6th Sentinel Asia System Operation Training



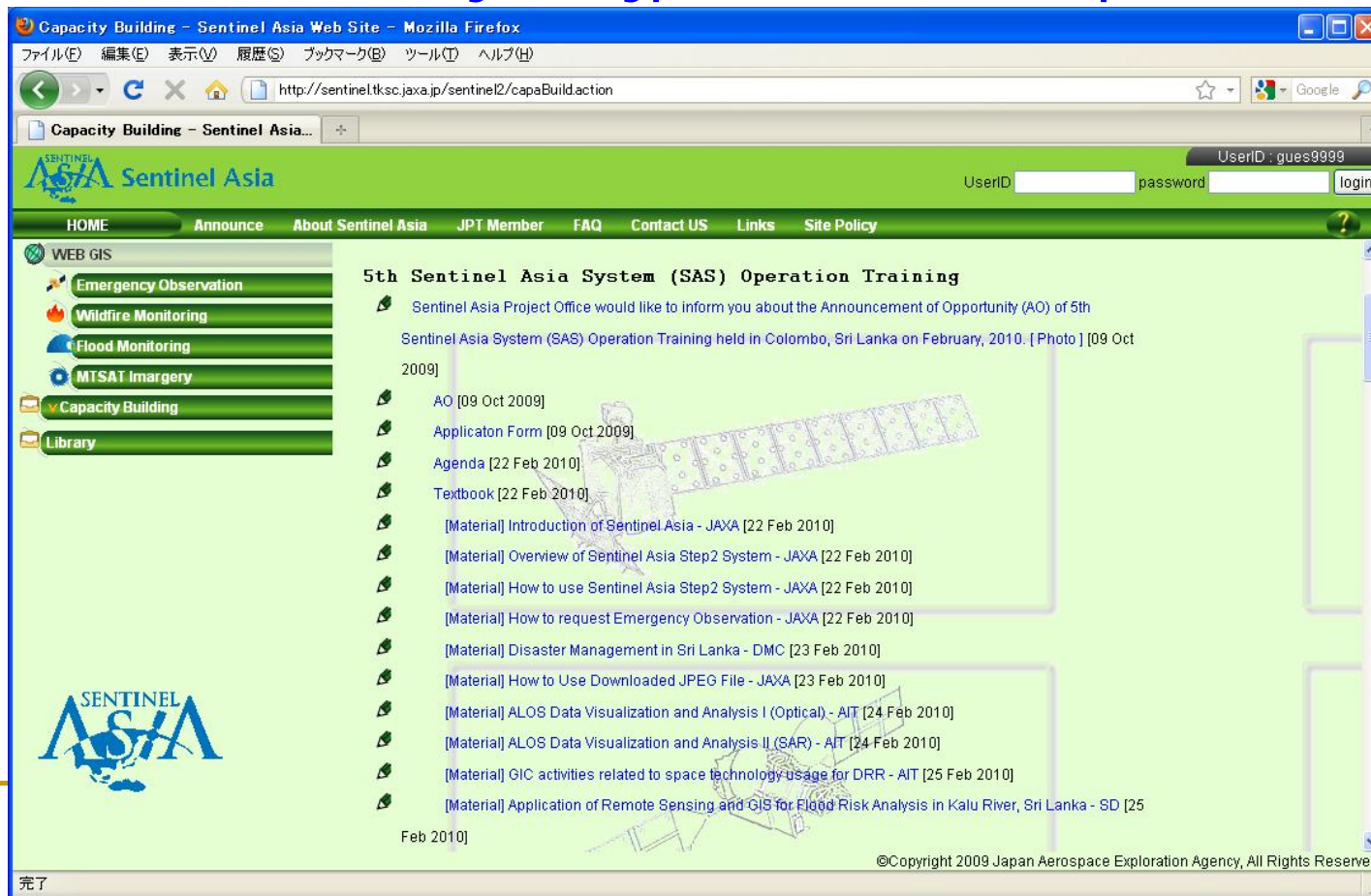
The contents of the 6th training session were as below:
In this training session, the lectures were sent by JAXA, AIT, GISTDA, ISRO and MoDMHR (Sri Lanka.)

- > **Operation of Sentinel Asia System**
 - **Step-2 System Operation (JAXA)**
 - **Emergency Observation Request (JAXA)**
 - > **Utilizaiton of Satellite Data**
 - **ALOS Data Visualization (AIT)**
 - **THEOS Data Visualization (GISTDA)**
 - **FORMOSAT2 Data Visualization (NARL)**
 - **Principle of SAR (JAXA)**
 - > **Case Study for Disaster Management**
 - **Thailand Case (GISTDA)**
-

Sentinel Asia Training Materials

All materials of Sentinel Asia System Operation Training are listed on the following website.

<http://sentinel.tksc.jaxa.jp/sentinel2/capaBuild.action>



The screenshot shows a Mozilla Firefox browser window displaying the Sentinel Asia website. The page title is "Capacity Building - Sentinel Asia Web Site". The URL in the address bar is "http://sentinel.tksc.jaxa.jp/sentinel2/capaBuild.action". The website has a green header with the Sentinel Asia logo and navigation links: HOME, Announce, About Sentinel Asia, JPT Member, FAQ, Contact US, Links, and Site Policy. A sidebar on the left contains a "WEB GIS" menu with options: Emergency Observation, Wildfire Monitoring, Flood Monitoring, MTSAT Imagery, Capacity Building, and Library. The main content area is titled "5th Sentinel Asia System (SAS) Operation Training" and contains a list of training materials, including "Sentinel Asia Project Office would like to inform you about the Announcement of Opportunity (AO) of 5th Sentinel Asia System (SAS) Operation Training held in Colombo, Sri Lanka on February, 2010." and various "AO" and "Material" entries with dates. The footer of the page includes the text "©Copyright 2009 Japan Aerospace Exploration Agency, All Rights Reserved." and "完了" (Completed).

*Thank you very much for your interest
&
Domo Arigato Gozaimashita*
