

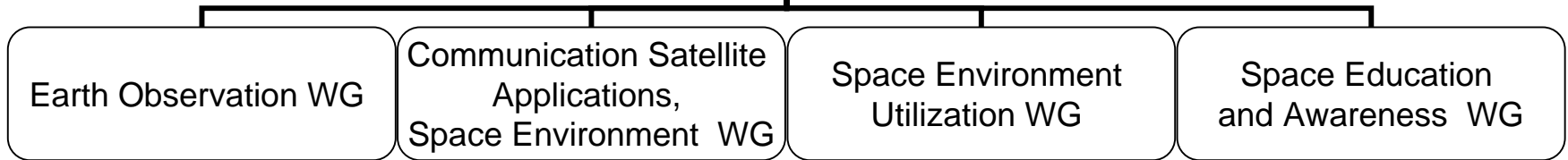
Capacity Building in Asia Pacific Region for Water Cycle Observation

1. Asia-Pacific Regional Space Agency Forum
2. Training Course in Asia Pacific Region for Satellite Remote Sensing
3. Current Pilot Project
4. New Pilot Project
5. Perspective for GPM

Tasuku Tanaka
JAXA/EORC

1. Asia-Pacific Regional Space Agency Forum (APRSAF)

APRSAF



Established in 1993

Objective : to enhance the development of each country's space program and to exchange views toward the future cooperation in space activities in the Asia-Pacific region

Workshop On Disaster Management By Satellite Remote Sensing will be organized in Malaysia In May '05

[Members]

26 countries

(Australia, Bangladesh, Brunei Darussalam, Canada, Cambodia, China, France, Germany, India, Indonesia, Japan, Republic of Korea, Laos, Malaysia, Mongolia, Myanmar, Nepal, New Zealand, Pakistan, Philippines, Russia, Singapore, Sri Lanka, Thailand, U.S.A, Viet Nam)

+ 8 International Organizations

2. Training Course in Asia Pacific Region

Purpose

- Train young professionals for the satellite data use
- Solve environmental problems in the Asia-Pacific region
- Integrate JAXA satellite data with In-Situ and GIS

Courses

- Caravan Training: One Week Basic Remote Sensing
Training with Rotating Venues, Since '92
- Mini-Projects: Combination of Training, Fieldwork
and Target Application, 1 Year (9 Weeks at AIT)
- Workshops: Outreach Activities for Environment
and Disaster Management
(Co-organized with UN-ESCAP and Asia Disaster
Reduction Center (ADRC))

Composition of Training Participants

Composition of GAC Trainees 1995 -2004			
<i>Country</i>	<i>Trainees</i>	<i>Country</i>	<i>Trainees</i>
Bangladesh	95	Malaysia	17
Bhutan	5	Mongolia	14
Brunei	3	Myanmar	35
Cambodia	46	Nepal	73
China	13	Pakistan	20
Ethiopia	1	Papua New Guini	1
Fiji	7	Philippines	69
Hong Kong	3	Singapore	4
India	29	Sri Lanka	86
Indonesia	110	Taiwan	1
Iran	2	Thailand	132
Japan	9	UK	2
Korea	2	Vietnam	91
Lao PDR	47	Total	917

Caravan Training Programs by AIT

1997	Philippines	<i>RS/GIS/GPS for Mid-Level managers</i>
1997	Nepal	RS and GIS for Nepal
1998	Indonesia	GIS, RS and GPS
1998	Vietnam	Mapping from Space
1999	Sri Lanka	Mapping from Space
1999	Bangladesh	Flood mitigation
2000	Cambodia	Mapping from Space
2000	Myanmar	GIS and RS for forest management
2001	Malaysia	Watershed management in ASEAN
2002	Lao PDR	Watershed management
2002	Philippines	Potential of SAR data and applications
2003	Bangladesh	RS and GIS for urban planning
2003	Cambodia	Moderate resolution satellite data applications
2004	Indonesia	Moderate resolution satellite data applications
2004	Myanmar	GIS and RS for forest management

Mini Project

Country	Main Organization	Project topic
Nepal	Survey Dept	Urban area mapping
Cambodia	Dept. Land Management	Land use mapping
Bangladesh	SPARRSO	Flood mitigation
Philippines	PhilRice	Paddy area mapping
Lao PDR	Ministry of Forest	Forest land mapping
Vietnam	STAC	Mangrove forest mapping

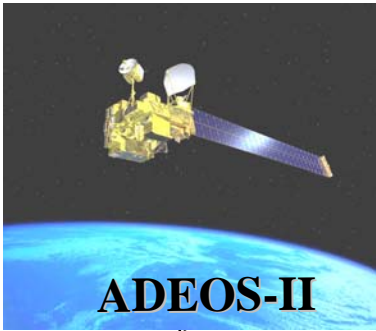
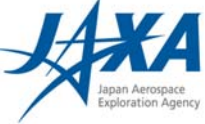
3. Current Pilot Project in ASIA

- Agreement of Pilot Project (FY2003-FY2005):
 - GISTDA (Thailand),
“The Pilot Project of Using the ALOS Data for Land Management and City Urban Planning in Thailand”
 - LAPAN (Indonesia),
“The Pilot Project of Utilization of the ALOS and ADEOS-II Data for Coastal Security and/or Fishery in Indonesia”

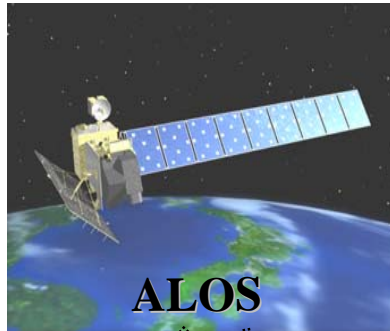
- Proposal to Pilot Project (FY2006--TBD)
 - Nepal
“The Pilot Project of Local Environmental Change Detection in Nepal”
 - Bangladesh
“The Pilot Project on Environmental Change Detection & Disaster Mitigation in Bangladesh”



Project Proposal By GISDA (Land Management & City Planning)



ADEOS-II



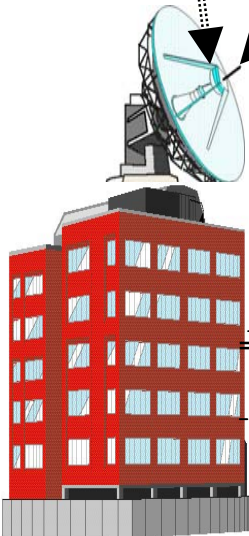
ALOS

ALOS Mission

- Mapping
- Regional Observation
- Disaster Monitoring

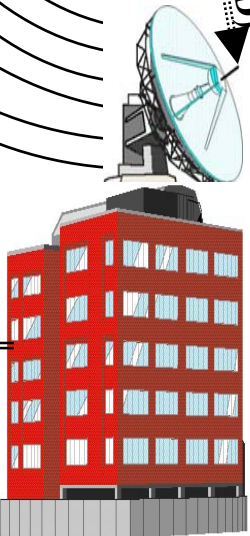
AVNIR-1 (GPRD)

Cooperation



JAXA

Agreement



GISTDA

Data

Participating Agency

- DEM Generation
- Detection of Change Area
- Extraction of City Area
- Digital Mapping
- Land Utilization Mapping

Department of Public Works and Town Planning (DTP)
 Ministry of Agriculture and Cooperatives

Project Term : 3 years

Roles of JAXA	Roles of Participant
<ul style="list-style-type: none"> • Training and Technical Assistant • Support for Analysis Methodology • Consultation and Review 	<ul style="list-style-type: none"> • ADEOS-II/ALOS utilize • Processing, Analysis and Interpretation • Addition, Other Information • Execution and Reporting

Cooperating Agency (T.B.D)

LDD

DOF

RID

Expecting Outcomes

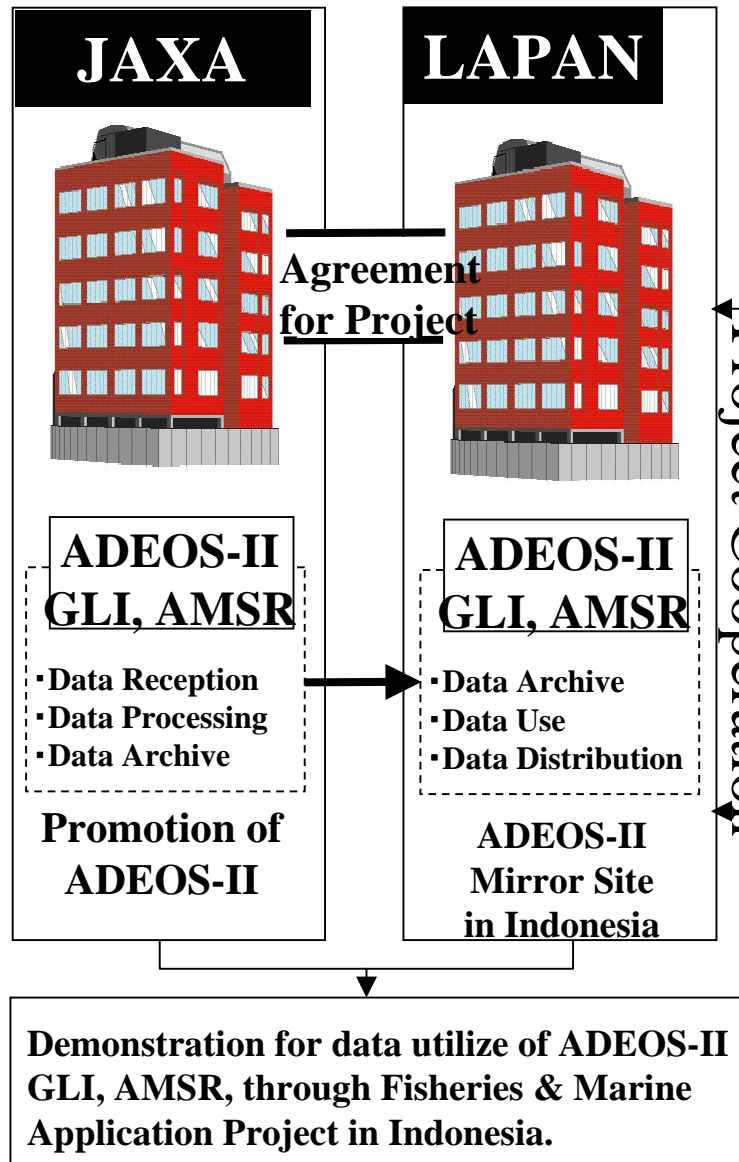
- Contribute to Town and Country Development Policy
- Governmental use for Land Management Application
- Promotion of Japanese Earth Observation Satellite

- GOAL -

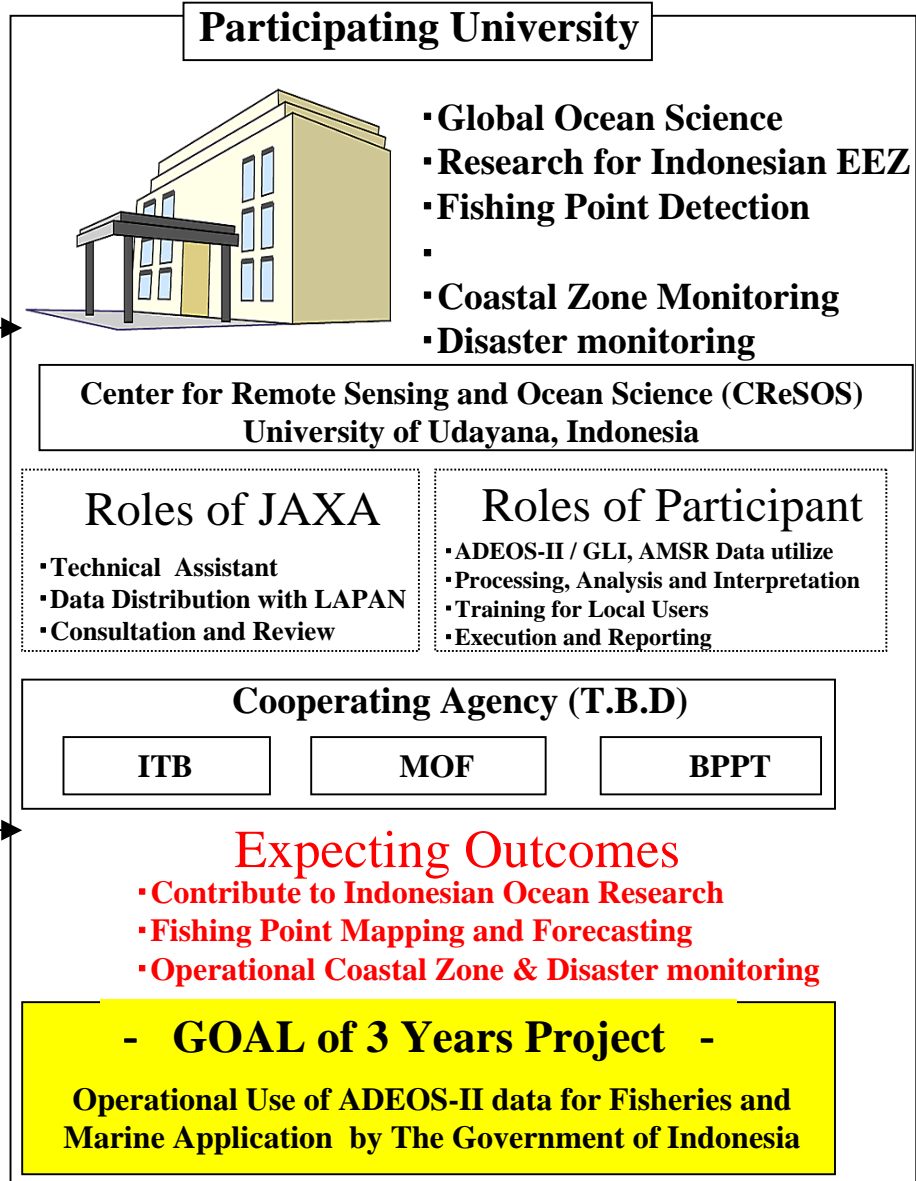
Operational Use of ALOS data for Land Management by The Government of Thailand



Project Proposal By LAPAN (Fisheries & Marine Application)



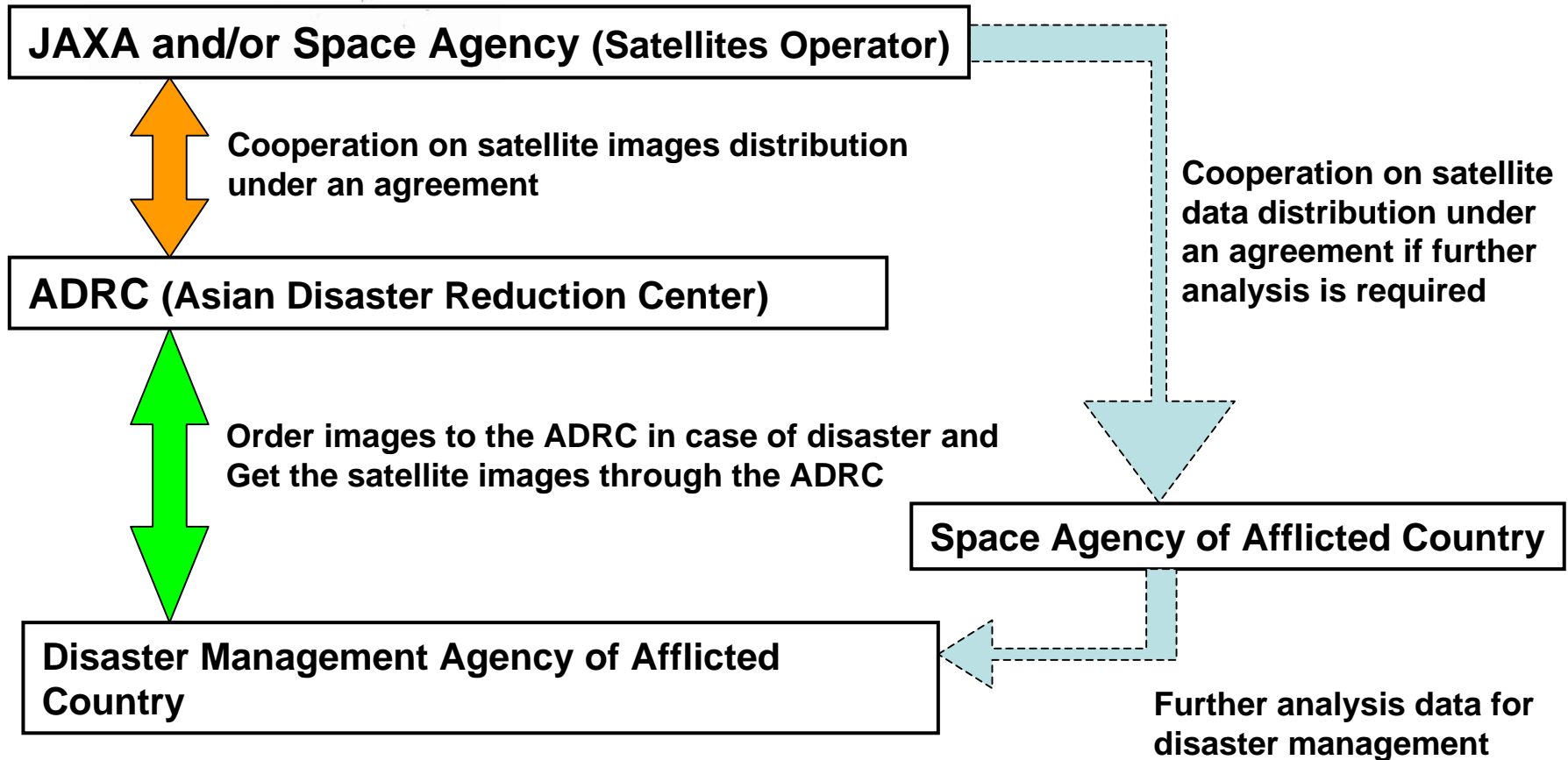
Project Cooperation



Framework of Effective Satellite Data Distribution to Asian countries



ALOS, GPM, and JAXA Satellites



ALOS PI List (1)

PI's Name	ALOS Research Theme	Country
Hasanuddin Z. Abidin	Studying the deformation of Indonesian volcanoes by GPS and INSAR Techniques	Indonesia
Lai Anh Khoi	Experimental use of ALOS data for topographic mapping	Vietnam
GUO Huadong	Study for Land Surface Properties with ALOS PALSAR	China
Nguyen Dinh Duong	Land cover and vegetation distribution mapping using combination of AVNIR-2 and PALSAR data	Vietnam
Tran Duc Thanh	Monitoring and Prediction the Coastal Flood in the Vietnam Center Using ALOS Satellite Data	Vietnam
Wang Zhihua	Validation of ALOS for investigating and monitoring landslide activity	China
Joong-Sun WON	ALOS PALSAR Investigation of Coastal Geomorphologic Mapping	Korea
Zhang Wei	Agricultural land use dynamically survey and management	China
Wooil M. Moon	Research and Application Development For Polarimetric SAR Technique For Volcanic Feature Investigation and Volcanic Hazard Monitoring	Korea

ALOS PI List (2)

PI's Name	ALOS Research Theme	Country
U Tun Than Tun	Development of Geographic Information System(GIS) database for Yangon City Development Plan using ALOS /PRISM and ALOS/ SVNIR-2 image data	Myanmar
U Maung Maung Than	Development of GIS database for Myanmar at national level using ALOS data	Myanmar
Muhtar Qong	Development of Land-cover Classification Algorithm Using Scattering Matrix Characteristics of Polarimetric SAR Images	China
Ranendu Ghosh	Comparative evaluation and validation of terrain parameters using PRISM stereo pair and PALSAR interferometry data	India
V. N. Sridhar	Improvement in crop discrimination / Optical and Microwave data	India
Jerry H. G. Salvador	Analysis of topographic and geologic terrain features in relation to two rapidly developing urban areas in the Philippines	Philippines
Nitai Kundu	Study of the ecological impact of sewage irrigated vegetable farming of Calcutta Metropolis using Remote Sensing & GIS	India

Perspective for GPM

TRMM's Experience for Operational Purposes

- 1. Monitoring and predicting the future behavior of tropical cyclones.**
- 2. Estimating rainfall.**
- 3. Predicting weather.**
- 4. Monitoring of climate variability (precipitation and sea surface temperature).**

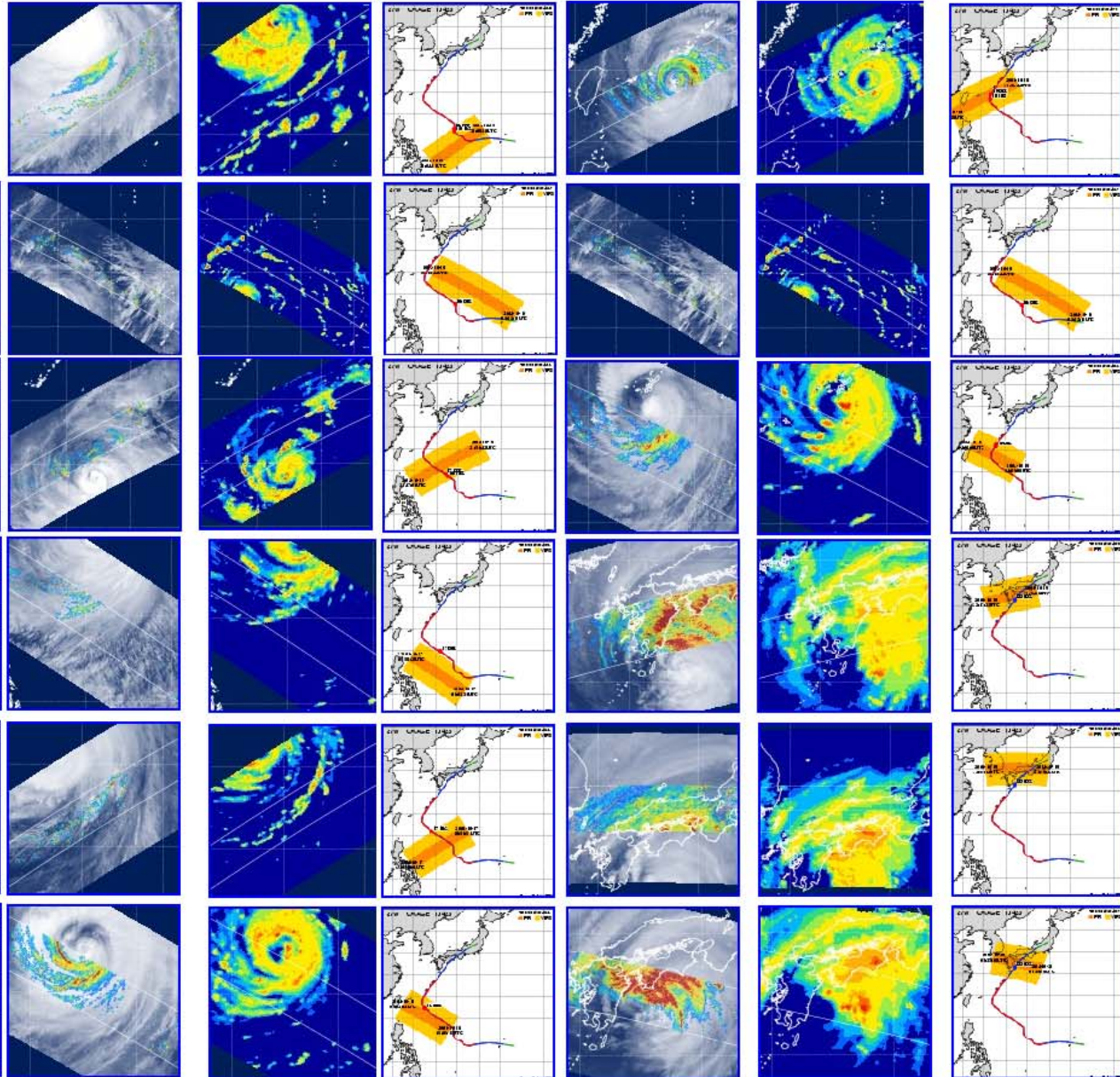
The effect of TRMM data on operational applications has not been widely quantified because the data record is too short for meaningful statistical analysis. Further, the socioeconomic effects on end-users of improved forecasts have not been quantified.

Excerpt from "Assessment of the Benefits of Extending the Tropical Rainfall Measuring Mission: A Perspective from the Research and Operations Communities" (Interim Report, National Research Council of the National Academies of USA)

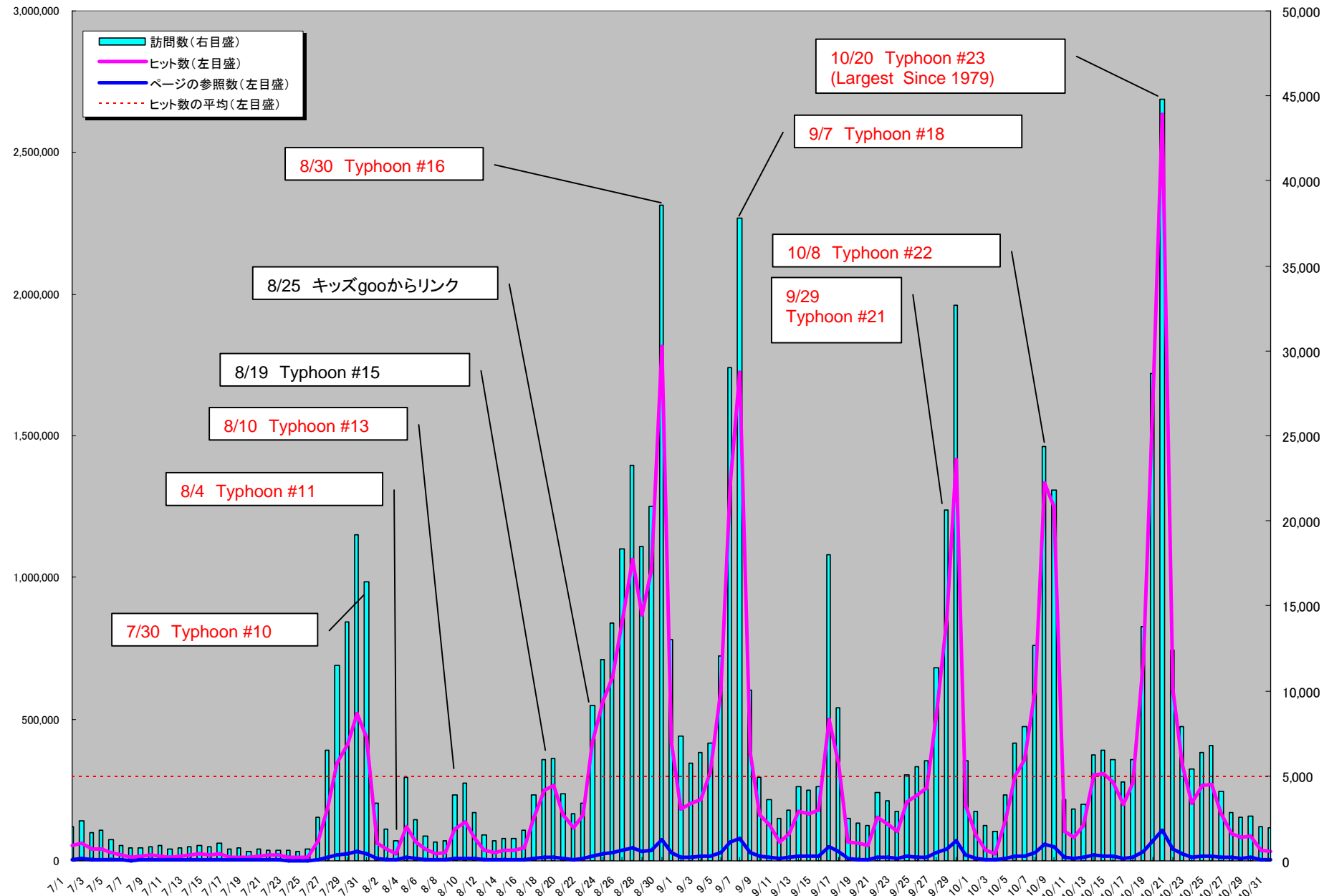
Typhoon TOKAGE(27W) T0423

Track Chart (JPEG, 500x500, 75KB)
 Period : 12 Oct. 2004 - 20 Oct. 2004
 Region : North Western Pacific
 Maximum Sustained Winds : 125kt (Category 4)
 Number of TRMM Observation : 16

PR/VIRS Image TMI Image Observation Area



TRMM 台風ホームページのアクセス状況(2004.7~2004.10)



Conclusion

- JAXA has been making large effort to enhance the cooperation in the area of Space Activities since 1992.
- JAXA has organized several capacity building activities in Asia-Pacific region.
- JAXA is looking forward to enhance the capacity building activities by future satellite programs, in particular GPM, of the water cycle observation, through international cooperation, and for water resource and environment management.