

47th COPUOS-STSC  
Vienna, Austria



**APRSAF**

Asia-Pacific Regional  
Space Agency Forum

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# Summary of APRSAF-16

*“Space Applications: Contributions  
towards Human Safety and Security”*

9 February 2010

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Japan Aerospace Exploration Agency (JAXA)

# Asia-Pacific Regional Space Agency Forum (APRSAF)

- Established in 1993, following the International Space Year in 1992.
- Goal: to promote regional cooperation in space development and applications.
- Participating entities: space agencies, government entities, include. user agencies, and international organizations (regional & global).
- Objectives:
  - Contribute to the socio-economic development in Asia and the Pacific and the preservation of the global environment using space technology and its applications;
  - Explore possibilities for future cooperation among developers and users of space technologies, to increase benefits for all countries in the region, identify areas of common interest and assign priorities for action;

The above to be pursued while keeping in mind the importance of cooperating with space agencies and other relevant entities outside the region that support APRSAF objectives.

# Framework of APRSAF



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## Working Groups



**Earth  
Observation  
WG**

**Communication  
Satellite  
Applications  
WG**

**Space  
Environment  
Utilization  
WG**

**Space  
Education  
And  
Awareness  
WG**

4 Wags were born in 2001, APRSAF-8

## Initiatives

SENTINEL  
**ASIA**



**"Sentinel Asia"  
Disaster Management  
Support System**

Born in 2005,  
APRSAF-12



**"SAFE"  
Space Applications  
for Environment**

Born in 2008,  
APRSAF-15



**"STAR"  
Satellite Technology  
for the Asia-Pacific  
Region Program**

Born in 2007,  
APRSAF-14



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# Overview of APRSAF-16

- Date/venue: 26-29 January 2010, in Bangkok, Thailand
- Theme: "Space Applications: Contributions towards Human Safety and Security"
- Co-organized by:  
MOST (Thailand),  
GISTDA (Thailand),  
MEXT (Japan), and  
JAXA (Japan)
- Participants:  
About 310 from  
26 countries and  
10 international org's



# Outcomes of APRSAF-16



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- 4 working groups met for the first two days.
- Plenary sessions held for the last two days, including the following:
  - Reports by 10 countries including NASA(invited)
  - Statements by representatives of the international organizations: e.g. UN COPUOS, UN ESCAP, ASEAN SCOSA
- Side events: GNSS Workshop, Poster Contest, Water Rocket Event
- Adoption of the recommendations, including the following:
  - APRSAF-16 participants....
    - Wish that the outcomes of APRSAF-16 will be presented by the Chairman of UNCOPUOS at its session as well as that of its STSC in 2010;
    - Recommend that the Chairman of UNCOPUOS would present the outcomes of APRSAF-16 as regional cooperative structures to other regions such as Latin America and Africa to promote inter-regional cooperation, as mandated by the UN General Assembly.



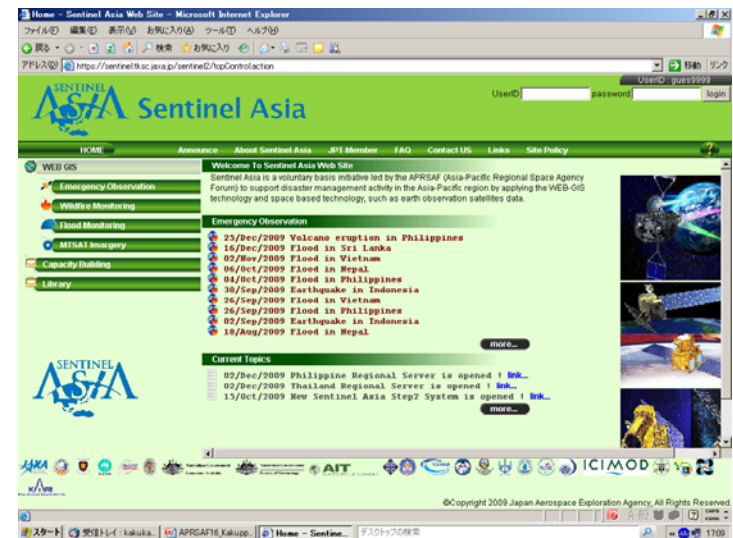
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# Sentinel Asia

Sentinel Asia is a voluntary initiative by a collaboration between space agencies and disaster management agencies, applying remote sensing and Web-GIS technologies to assist disaster management in the Asia-Pacific region.

- In Oct 2005, APRSAF-12, in Kitakyushu, Japan, approved the plan to initiate the pilot project.
- In Feb 2006, Joint Project Team (JPT) was organized. Joint Project Team (JPT).
- JPT consists of total 65 organizations including 56 agencies from 22 countries and 9 international organizations as of January 2010.
- Step1 (2006-2007), a pilot project, has finished, and [Step2 \(2008-2012\)](https://sentinel.tksc.jaxa.jp/) has initiated.



**New Website**

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

# Sentinel Asia: Outputs of APRSAF-16

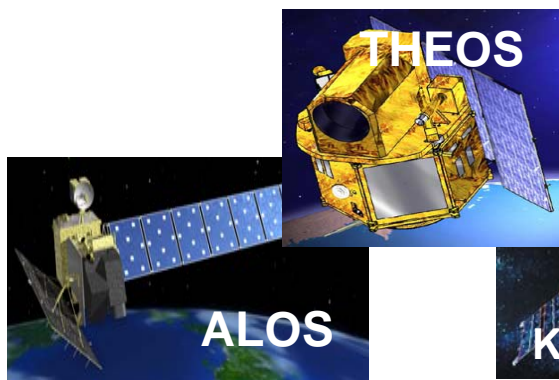


Activities of the Joint Project Team for STEP 2 are going well and the new STEP2 Web-GIS will be replaced from the STEP1 system from April 2010.

Utilization of WINDS "KIZUNA" was steadily started to transmit images rapidly.

KARI and GISTDA started to provide images along with JAXA and ISRO.

- The new working group called the Glacial Lake Outburst Flood Monitoring WG (GLOF-WG) was launched at the last JPTM held last July.
- Collaboration between Sentinel Asia and International Disaster Charter to enhance capability for disaster response in the Asia-Pacific region was agreed.
- Collaboration between UN SPIDER through ADRC (Asian Disaster Reduction Center), the Regional Support Office (RSO) of UN SPIDER is agreed.



International  
Disaster  
Charter  
Coming  
soon

The logo for the International Disaster Charter, featuring a globe with a network of lines and the text 'INTERNATIONAL DISASTER CHARTER' around it.



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# STAR Program

## -Satellite Technology for Asia Pacific Region-

- Proposed in the APRSAF-14 as a new international cooperation scheme on small satellite development.
- Objective is to enhance the space technology of space related agencies and organizations in Asia-Pacific region.
- Now conducting the joint system study on EO-STAR satellite (300-500kg class).
- Also conducting the development activity of Micro-STAR Technology Experiment satellite (50kg class).



**System Study**



**Satellite technology  
capacity building**



**Development**

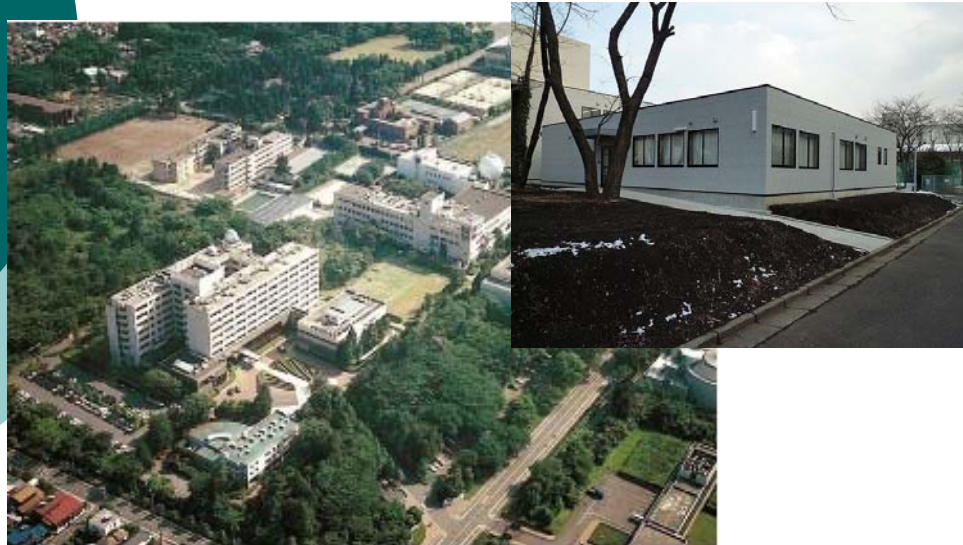


# International Project Office of STAR Program



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## STAR project team



Dispatch engineers  
GISTDA, Thailand  
LAPAN, Indonesia  
KARI, Korea  
ISRO, India  
JAXA, Japan

Under coordination  
VAST, Vietnam  
ANGKASA, Malaysia

## Project office at JAXA Sagami campus

- Encouraged in the APRSAF-16 to dispatch their staffs continuously and long term from the participating agencies for the STAR program at JAXA Sagami campus and concurrent engineering works at each agency.
- Also encouraged the organizations concerned to provide launch opportunity for the Micro- STAR satellite, ground station operation resource, and necessary instruments.

# SAFE

## Space Applications For Environment

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- A voluntary-based environment initiative in Asia-Pacific region, initiated in APRSAF-15
- Aims to encourage applications of EO data to environment , for societal benefits
- The end users of SAFE are the agencies and experts responsible for the environment.
- Prototyping, i.e. some trial projects, are implemented in Vietnam, Lao PDR, Cambodia, Sri Lanka and Indonesia for water resource management, forest management, etc..

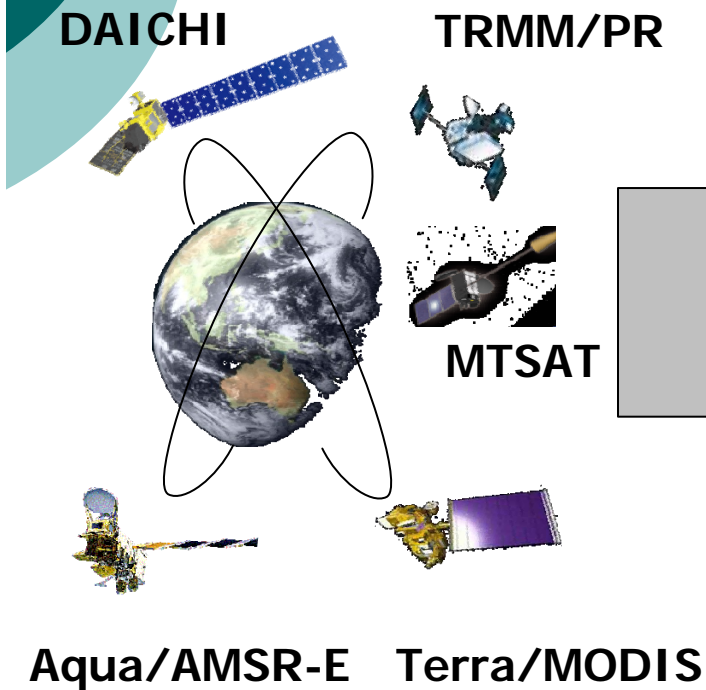
# SAFE

## Space Applications For Environment



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### Prototyping

Vietnam:  
Forest  
Management

Vietnam:  
Water Resource  
Management

Lao PDR:  
Forest  
Management

Cambodia:  
Water Resource  
& Agriculture

Sri Lanka:  
Risk of  
Sea Level Rise

Indonesia:  
Potential Drought

### Social Benefits in Asia-Pacific



Water



Weather



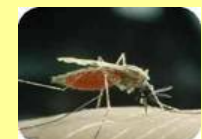
Ecosystems



Energy



Climate



Health



Agriculture



Biodiversity

# Earth Observation WG

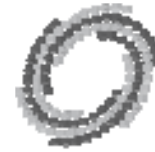


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- Objective is to discuss subjects on earth observation activities in the Asia-Pacific region.
- Aims to provide opportunities to study a global network of space-based systems to promote global environmental research, natural disaster mitigation and other practical data applications.
- Aims to understand use of earth observation technologies to monitor environment of Earth and exchange earth observation activity information.
- Also aims to enhance the capacity building for utilization and application of earth observation data in Asia-Pacific region.
- Initiated Sentinel Asia and SAFE as a practical initiatives.





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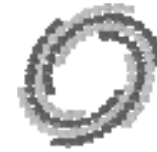
# Earth Observation WG

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## <Topics at the APRSAF-16 EOWG>

- Recognize that the participating countries and international organizations have various needs for space applications to cope with the climate change adaptation and mitigation issues, disaster management and climate change affected issues.
- Confirm the progress of ongoing four SAFE prototyping and approve two new proposals (Sri Lanka: sea level rise and Indonesia: potential drought) as SAFE prototyping.
- Realize the value to continue information exchange with private sectors and encourage their participation to implement space applications.
- Agreed further study how utilize the communication satellite (i.e. WINDS) and EO data/GIS in ASEAN Foundation CISCAI (Communication and Information Systems to the Control Avian Influenza) project.

# Communication Satellite Application WG



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- An opened working group to find way to solve the digital divide issues as well as broadband service in Asia-Pacific region.
- Aims to share the experiences to realize cooperation among participating countries in this region, regarding applications of satellite communication for tele-education, tele-medicine and disaster management, taking into account the needs to resolve the digital divide in the Asia-Pacific region.
- Agreed in APRSAF-16 to promote the Asia-Pacific regional cooperation by sharing the experiences and the opportunities such as the WINDS satellite experiments and working on the creation of new applications.
- Welcomed in APRSAF-16 the successful completion of the first regional workshop on Global Navigation Satellite Systems (GNSS), and expect to launch the Multi-GNSS demonstration campaign as a new initiative for sustainable development of the Multi GNSS applications including QZSS utilization in this region in APRSAF-17.



WINDS

Data Transmission  
via WINDS

Regional Server

Regional Server

Internet Access  
to Regional Server



# The first Asia Oceania Regional Workshop on GNSS



**APRSFA**

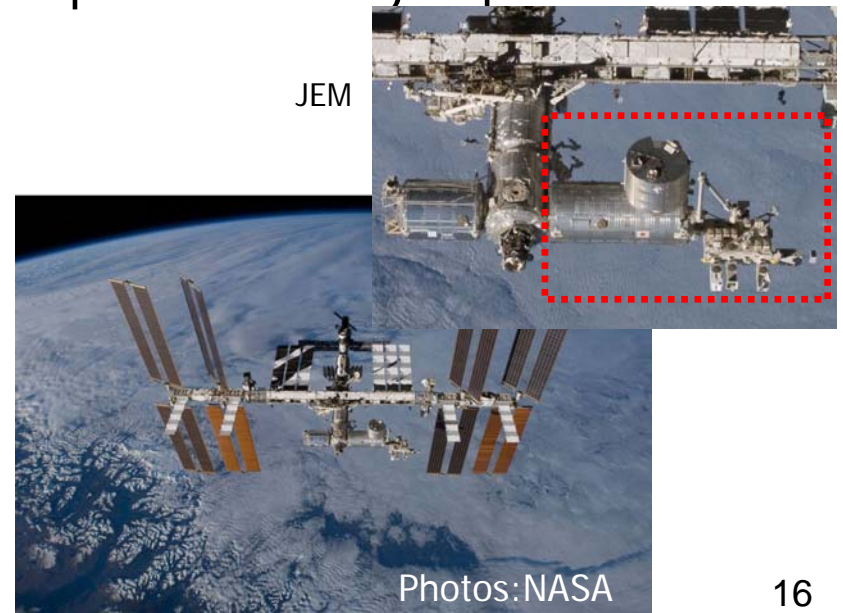
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- Held on January 25 and 26 at Sofitel Centara Grand Bangkok, Thailand, hosted by SPAC, JAXA and GISTDA as well as supported by United Nations International Committee on GNSS (UN ICG).
- 195 participants from 95 organizations including GNSS providers, universities, related research institutes and agencies from 18 countries.
- Objectives of the workshop
  - To promote joint demonstration projects of multi GNSS applications in Asia Oceania Region
  - To share information and exchanging opinions about Multi-GNSS Demonstration among participants
- Results
  - The first workshop was successfully implemented
    - Network and relationship among participants were established
    - Common understanding for the coming “Asia Oceania Multi-GNSS Demonstration Campaign” could be shared
    - Several projects for future joint demonstration of multi GNSS were proposed through Group Discussion

# Space Environment Utilization WG

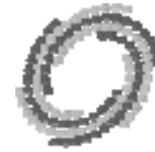


- To discuss cooperation schemes and potential joint-research subjects utilizing the space environment.
- Considerations have been made to realize joint on-board experiments in "KIBO", and feasibility studies are now in progress.
- Has been promoted concrete activities towards the joint utilization, continued to share and update information multilaterally on space environment utilization status, and sought promising areas of steady and productive cooperation among Asia-Pacific countries such as parabolic flight experiments and ISRO's capsule recovery experiment.
- Recommend in the APRSAF-16 to expand the task force activities to realize a joint "KIBO" utilization for education and outreach to public, such as "KIBO Hi-vision EarthView" program.
- Encourage to further promote bilateral cooperation activities among APRSAF participating countries.





# Space Education and Awareness WG



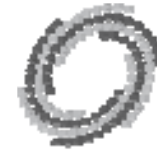
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- Contributing to inter-regional cooperation through space education
  - Support to school teachers to facilitate the integration of space subjects and materials providing available educational materials in local languages and provide training opportunities for teachers in space education.
- Joint initiatives for primary and secondary school students and teachers
  - Joint development of a leaflet to promote water rockets for education
  - Space Education Seminar in Bangladesh in 2010
  - “GIS Toolkit for Schools” project by GISTDA: 1st technical workshop in February 2011 for teachers from APRSAF countries
- Joint initiatives for university and graduate students
  - Promoting CanSat activities
  - GNSS applications training opportunities
  - Payload Competition by LAPAN/Indonesia: 28 June 2010
- Expanding water rocket activities for educational purposes, from Asia and the Pacific to other regions, such as Latin America
- Expanding the activities to contribute to global initiatives undertaken by entities of the UN system and other international organizations



# APRSAF-16 Side Events



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## Poster Contest



Poster of the first-prize winner

Poster of  
the second-  
prize winner

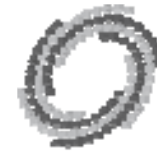


Poster of  
the third-  
prize winner



- Organized annually since 2006
- For students btwn. 8 and 11 years old
- Theme for 4th Poster contest:  
“Our Universe – Great Discoveries”.
- 28 posters submitted by 10 countries
- Best Poster Award:  
Ms. Amanda Rizqi Nursidin  
(Indonesia)
- Special Poster Award:  
Ms. Madihah Zahirah  
(Malaysia), Mr. Thanaphol  
Sopha (Thailand)

# APRSAF-16 Side Events



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## 5th APRSAF Water Rocket Event: 23-24 January 2010

- Organized annually since 2005
- For students btwn. 12 and 16 years old
- Hosted by the National Science Museum, Thailand
- Teachers & Leaders Seminar on 23 January
- Launch Competition on 24 January
- 1st place: Mr. Saringkan Thongthae (Thailand)
- Participants: 53 students and 23 teachers from 15 countries, incld. Colombia and Ecuador
- 6th Water Rocket Event and 5th Poster Contest (theme "Space Technology to Help the Earth") in conjunction with APRSAF-17



# Conclusions

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- APRSAF is a unique forum for space and user agencies in the Asia-Pacific to discuss regional cooperation to expand space technology development and applications.
- It aims to strengthen partnerships among space and user agencies in the region.
- It has re-positioned itself to undertake concrete initiatives and projects, e.g. Sentinel Asia, STAR program and SAFE, with more expected in the coming years.
- APRSAF-16 adopted its recommendations, consisting of 27 operative paragraphs.
- APRSAF-17 will be held in Melbourne, Australia, in November 2010 with the Government of Australia as its host.



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**Thank you for your  
attention.**

**<http://www.aprsaf.org/index.html>**