

***Sixteenth Session of the Asia-Pacific Regional Space Agency Forum
(APRSAF-16)
EO(Earth Observation)WG activities
Proposed Outline***

1. The Scope/Objectives

The EOWG has been exploring opportunities to expand the potential use of EO satellite data for disaster applications (Sentinel Asia) and the environment (SAFE: Space Applications for Environment). The upcoming EOWG will focus on monitoring the progress of SAFE, and stimulating discussion to start up new activities that respond to a wider spectrum of user requirements.

1) SAFE Progress Report

The SAFE general secretariat will report on current SAFE updates; in particular, ongoing SAFE prototyping activities, and will ask participants of the EOWG to approve new candidates.

2) Country Reports

In this session, participating countries and international organizations are kindly invited to contribute Country Reports. The co-chairs expect the presenters to report EO activities for each country (or organization) related to the APRSAF. Of course, we welcome the presenters to include proposals for new activities in the report.

**Please understand that we cannot provide time slots for all member countries because of the schedule. The co-chairs will lead the arrangements with the APRSAF secretariat.*

3) Potential of New Subjects: Private Sector Initiatives

This is a session for participants from private sectors. The co-chairs expect the presenters to explain how their business field is related to EO, as well, to show how they may contribute to the APRSAF as private sectors.

**Please understand that we cannot provide time slots for all participating companies because of the schedule. The co-chairs will lead the arrangements with the APRSAF secretariat.*

2. The Results of EOWG Activities at APRSAF-15

See attached: APRSAF-15 adopted recommendations.

3. The Draft of the Agenda

- 1) Opening of the Session
- 2) Adoption of the Agenda
- 3) Self-introductions
- 4) Review of the Last EOWG in Hanoi, Vietnam
- 5) Focus of EOWG
- 6) Keynote Speeches
- 7) SAFE Progress Report
- 8) Country Reports
- 9) Potential of New Subjects: Private Sector Initiatives
- 10) Overall Discussions and the Way Forward
- 11) Conclusions of EOWG and Wrap-up

4. Expected Outputs

- 1) Confirm progress of SAFE
- 2) Approval of proposed SAFE prototypes
- 3) Confirm further application opportunities
- 4) Confirm the role of the private sector in EOWG

*Sixteenth Session of the Asia-Pacific Regional Space Agency Forum
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*SEA (Space Education and Awareness) WG Activities
Proposed Outline*

1. Background and objectives

Space has been an important part of human civilization. Throughout the human history, the quest for knowledge of the universe has led humankind to learn more about where they have come from, where they stand and to expand their imagination about where they are going.

Permeating many aspects of human activities today, space has increasingly become an essential, integral part of our daily lives. Benefits derived from space applications have transformed the way we look at our environment and our planet, the way we communicate and interact with each other and the way we move from one place to another, dramatically increasing the safety, security, accuracy, predictability and convenience in our daily conduct.

In spite of the growing evidences of the usefulness of space science and technology for the society, the appreciation by the general public of their importance is still limited. Efforts should continue to increase public awareness of the usefulness and importance of space science and technology and their applications to enhance the quality of our lives and to support sustainable development of our society.

For young people, space activities provide more than useful tools and information. They serve as the source of interest, imagination and inspiration. Attractive space materials can be effectively used to spark intellectual flame in the minds of young people not only in science and technology but also in many other aspects of human activities. Effectively used, examples of the past achievements and efforts to overcome challenges in the use and exploration of outer space can motivate young people to pursue excellence in whatever they do and help them understand how important, and how rewarding, it is to work together with many others to serve the society.

It is with such conviction that the Space Education and Awareness Working Group was established at the 8th session of APRSAF, in July 2001, with the aim of: i) effectively using space materials to enhance education for young people; ii) providing education and training opportunities for young people in space science and technology; iii) contributing to enhancing mutual understanding among countries in the region through exchange opportunities

for young people; and iv) increasing public awareness of the societal benefits and importance of space activities.

2. Achievements and on-going initiatives

The Working Group has organized the following activities since 2004.

<Water Rocket Event for young people>

The Working Group has organized the Water Rocket Event each year since 2005, immediately following the APRSAF session. Attended by 20 – 30 students from about 10 countries, selected through national competitions, the Water Rocket Event has provided opportunities for young people between 12 and 16 years old not only to learn about basics of rocket science and turn their knowledge into practice, but also to learn about other countries and their cultures and to build lasting friendship beyond national borders based on common interest. The next Event is planned to be held in Bangkok, Thailand, from 23 to 24 January 2010, immediately preceding APRSAF-16.

<Poster Contest for young people>

The Working Group has organized the Poster Contest under a selected theme each year since 2006, during the APRSAF session, for children between 8 and 11 years old. From among those posters submitted by the participating countries, the participants of the APRSAF session vote to select the best poster, for APRSAF Best Poster Award, and the second and third best posters for APRSAF Special Poster Award. To contribute to the celebration of the International Year of Astronomy (IYA) in 2009, the Working Group produced a calendar for 2009 using the posters submitted for the last Contest, held under “Wonders of the Universe”. The theme for the next Poster Contest is “Our Universe – Great Discoveries”, which was selected in view of the IYA.

<Space Education Seminars / Forums for teachers and students>

Recognising the need for providing opportunities for primary and secondary school teachers and students particularly in developing countries to enhance their understanding of space science and technology and their applications and to participate in hands-on in education activities, the Working Group has convened space education forums and seminars in Vietnam and Indonesia in 2006. The last seminar has been just held in Sri Lanka in September 2009 for about 50 teachers.

<Water Rocket Education for educators>

In order to expand the pool of skilled and knowledgeable educators who can effectively use water rockets to enhance education for young people and to establish a network of such educators, the International Water Rocket

Education Workshop was held in Melbourne, Australia, in July 2008. Educators and space experts from 12 countries in the region as well as Latin America participated. As a result, an Internet-based Wiki site was established to serve as an on-line forum for anyone interested to exchange information and education materials relating to water rockets.

(See Wiki site:

<http://wiki.vssec.vic.edu.au/waterrockets/moin.cgi/FrontPage>).

<CanSat for university and graduate students>

The Working Group has agreed that CanSat activities could be promoted for university and graduate students and encouraged its members to participate in the International CanSat Workshop co-organized by Japan Aerospace Exploration Agency (JAXA) and University Space Engineering Consortium (UNISEC), in Tokyo, Japan, in February 2007. As a follow-up to this Workshop, the Working Group aims to organize an international meeting in the near future to exchange information and experiences in teaching how to develop CanSats and conduct their experiments as well as promoting CanSat activities among secondary school and university students.

3. List of discussion items¹

- 1) General exchange of views on space education and awareness increase
- 2) Joint educational activities for primary and secondary school students and teachers
 - a) Water rocket activities
 - b) Poster contest
 - c) Space education forum and seminar
 - d) Educational activities for the celebration of the International Year of Astronomy in 2009
 - e) Effective uses of satellite images for schools
 - f) Any other activities
- 3) Joint educational initiatives for university and graduate students and young professionals
- 4) Ways and means to promote collaborations among space scientists and engineers and educators to expand space education activities for young people
- 5) Ways and means to effectively exchange space education materials

¹ For more details of the work to be conducted during APRSAF-16, please refer to “Provisional Agenda” of the Working Group (document APRSAF/SEA-WG/2009/1) to be issued.

6) New and innovative funding sources to support space education activities

7) Other matters

- a) Review of the outcomes of the work of the Working Group and possibilities of revising its terms of reference and developing a plan of action
- b) Other matters

4. Objectives to be achieved at APRSAF-16

- Increase the number of countries in the region and international organizations that carry out or support activities that use space materials to enhance the quality of education for young people and that contribute to the enhancement of human development at individual level;
- Increase the availability of teaching and learning materials in various languages spoken in the region to enhance space education;
- Increase training opportunities for teachers and instructors to acquire knowledge and skills to carry out space education activities for young people and establish and strengthen a mechanism to support those teachers and instructors;
- Ensure that the educational initiatives undertaken through APRSAF contribute to achieving the goals identified at the global level in the area of education and to the relevant global initiatives of entities of the United Nations system and other international organizations;
- Contribute to enhancing inter-regional cooperation by making it possible for countries outside Asia and the Pacific to benefit from the educational initiatives undertaken by APRSAF.

***Sixteenth Session of the Asia-Pacific Regional Space Agency Forum
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CSA (Communication Satellite Application) WG activities
Proposed Outline***

1. The scope /objectives of CSA WG activities

The CSA WG has been discussing many topics on satellite communication matters and has been providing good opportunities to exchange each country's status report on, in particular, digital divide issues as well as the broadband service in the Asia-Pacific region. The CSA WG should share the experiences for realizing cooperation among countries in the 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 region.

Based on the previous APRSAF-15 discussion, the outline of the CSA WG in the APRSAF-16 is as follows:

1) New applications or concepts of the satellite communication for tele-education, tele-medicine and disaster management in the Asia-Pacific region

Until the previous meetings, many discussions concerning the digital divide issues have been made and useful information has been exchanged. Some applications were planned, demonstrated and organized to demonstrate in each country. The WINDS satellite communications experiments, which were proposed in the APRSAF, are conducting. The CSA WG should continue these activities under the regional cooperation and aim to promote new applications or concepts of the satellite communication for tele-education, tele-medicine and disaster management in the Asia-Pacific region.

2) Promotion for the activities on the Global Navigation Satellite System (GNSS) in the Asia-Pacific region

The Satellite Positioning, Navigation and Timing (PNT) is one of the important satellite applications and becomes widely used in the Asia-Pacific countries. Some countries study, develop and operate their original satellite positioning systems. The CSA WG agreed to organize the workshop to discuss the possibilities of the GNSS applications in the APRSAF-15. The CSA WG should support this activities.

2. The result of CSA WG activities in APRSAF 15

See attached the APRSAF-15 adapted the recommendations.

3. The Draft of Agenda

- 1) Opening of the session
- 2) Adoption of the agenda
- 3) General introduction and guidance of CSAWG
- 4) Report on the the Multi GNSS Workshop
- 5) Presentations of communications satellite systems and applications
 - a. Communications Satellite Systems
 - b. Current Status in Asia Pacific Region
- 6) Activity reports in the field of tele-education, tele-medicine and disaster management
 - a. Study report
 - b. Country report
 - c. General Discussion
- 7) Other matters
- 8) Closing of the session

4. Expected Outputs

The Asia-Pacific region still has the digital divide and in particular there is an imminent need for applications of tele-education, tele-medicine and disaster management for the rural, remote and islands areas. The communication satellites can play a major role in resolving the digital divide issue. On the other hand, many countries in this region have independent national plans and programmes for their respective countries in these areas of SATCOM and GNSS applications. The CSA WG will contribute to promote the Asia-Pacific regional cooperation by sharing the experiences and the opportunities such as the WINDS satellite experiment and working on the creation of the new application for the digital divide issue. The CSA WG will also support the the sustainable development of GNSS applications in this region.

*Sixteenth Session of the Asia-Pacific Regional Space Agency Forum
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SEU (Space Environment Utilization) WG activities
Proposed Outline*

1.The scope /objectives of Space Environment utilization WG activities

“Space Environment Utilization WG (SEU)”, have discussed ways to facilitate effective joint utilization of the space environment among Asia-Pacific countries since APRSAF-12, and have expanded the scope to general space environment utilization beyond ISS/JEM utilization. Any presentations and proposals from the participants concerning the international cooperation in the field of Space Environment Utilization are welcomed. Especially, reviewing the recent cooperation activities related to SEU WG, topics on lessons & learned, issues to be resolved for further cooperation, and the new proposals from agencies would be appreciated.

2.The result of Space Environment utilization WG activities in APRSAF 15
See attached the APRSAF-15 adapted the recommendations.

3.The Draft of Agenda

1) Status report on each activities following the APRSAF-15 recommendation and actions.

Cooperation on the ISS/JEM utilization feasibility studies

Cooperation on a micro gravity platform of the Space Recovery Experiment capsule (SRE) of ISRO

Report on JEM utilization in the first year (JAXA)

2) Activity reports of Space Environment Utilization

Activities reports from participants

3) Discussions on lessons learned and how to reflect our past experience to the future plans, recommendations

4) New proposals for future international cooperation

4.Expected Outputs

Common understanding on the Space Environment utilization status.

Expected areas of productive cooperation among Asia-pacific countries.

*Sixteenth Session of the Asia-Pacific Regional Space Agency Forum
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Sentinel Asia activities
Proposed Outline*

1. The scope /objectives of Sentinel Asia Initiatives activities

The Sentinel Asia (SA) was established in 2005 as a collaboration between space agencies and disaster management agencies under the APRSAF initiative, applying remote sensing and Web-GIS technology to assist disaster management in the Asia-Pacific region. A step-by-step approach for implementation of this dissemination system was adopted, and SA Step1 (2006-2007) has achieved its overall goals, demonstrating recent advancement in web-mapping technology and the ICT system. At APRSAF-14 held in Bangalore, India, in November, 2007, the recommendation on SA Step2 was adopted, and the new JPT meeting was held in Kobe, Japan, in June, 2008. Thus the Sentinel Asia Step2 (2008-2012) was initiated. Now the Join Project Team (JPT) consists of 54 organizations from 22 countries and nine international organizations.

At APRSAF-16, it will be provided with STEP2 activity report, Confirmation of cooperation with International Initiative such as International Disaster Charter, and Report on the expectation of STEP3.

2. The result of Sentinel Asia Initiative activities in APRSAF 15

See attached the APRSAF-15 adapted the recommendations.

3. The Draft of Agenda

Plenary Agenda as follows:

- | | |
|---|----------------|
| 1) STEP2 activity report (include of expectation for STEP3) | 25 min. |
| 2) Activity report by Asia Disaster Reduction Center (ADRC) | 15 min. |
| 3) Achieved result report on Sentinel Asia | 30 min. |
| 4) Status report on cooperation between Sentinel Asia and
International Activity | 20 min. |
| 5) Confirmation of the sentence recommendation | 10 min. |
| | Total 100 min. |

4. Expected Outputs

- 1) Activities on Sentinel Asia STEP2 have been working out well and steadily advanced since APRSAF15 was held.
To confirm that these activities are useful for disaster support management more than ever.
- 2) To confirm that KARI and GISTDA started to provide images along with JAXA and ISRO, and also JPT adjusted participation from each country, including Islands States.
- 3) To confirm building of cooperation with worldwide activities, such as International Disaster Charter.
- 4) To confirm that utilization of “WINDS” was steadily started to transmit the images with rapidity.
- 5) To confirm expansion of utilization of Sentinel Asia in the future that mainly around emphasizing further cooperation with disaster prevention agencies and so on.

*Sixteenth Session of the Asia-Pacific Regional Space Agency Forum
(APRSAF-16)
SAFE (Space Applications For Environment)
Proposed Outline*

1. The Scope/Objectives

SAFE (Space Applications For Environment) is a voluntary initiative for environmental monitoring, endorsed at the last APRSAF-15.

This session aims to report the current activities of SAFE, including the discussion of the EOWG.

1) SAFE Progress Report

The SAFE general secretariat will report on current SAFE updates, mainly, the events, the first SAFE workshop in Pattaya, Thailand (May 2009), and the SAFE mini-workshop at Jakarta, Indonesia (August 2009).

2) SAFE Prototype Activities

In this session, SAFE members will report on the status of SAFE prototype activities in various phases. Some of them are finishing their prototyping activities, and others have just started.

3) Announcement of the Second SAFE Workshop

The SAFE general secretariat will announce the next SAFE event, called “the Second SAFE Workshop”.

2. The Draft of the Agenda

- 1) SAFE Progress Report
- 2) SAFE Prototype Activities
 - a. Forest Monitoring (Vietnam)
 - b. Integrated Water Resource Management (Vietnam)
 - c. Water Cycle & Agriculture Monitoring (Cambodia)
 - d. Forest Monitoring (Laos)
 - e. Sea Level Rise on Coastal Zone (Sri Lanka)
 - f. Potential Drought Monitoring (Indonesia)
- 3) Announcement of the Second SAFE Workshop

3. Expected Outputs

- 1) Confirm progress of SAFE
- 2) Confirm the schedule of SAFE

*Sixteenth Session of the Asia-Pacific Regional Space Agency Forum
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STAR program activities
Proposed Outline*

1. The scope /objectives of STAR program activities

STAR program is a cooperative project by space agencies in Asia-Pacific region. It was proposed by JAXA in APRSAF-14 and has been started in 2009 at JAXA Sagamihara campus. It has two major objectives.

(STAR: Satellite Technology for the Asia-Pacific Region)

1) To provide the opportunity of capacity building for space agency staffs in Asia-Pacific region

2) To satisfy future Earth Observation needs by increasing the number of satellites in Asia-Pacific region

Space agency staffs in this region can join the STAR program. In addition, they will carry out system study of an Earth Observation satellite, EO-STAR (300-500kg class), development of an Experimental satellite, and Micro-STAR (50-100kg class) in 3 years.

2. The result of STAR program activities in APRSAF 15

See the attached APRSAF-15's adapted recommendations.

3. The Draft of Agenda

1) Progress of EO-STAR system study and Micro-STAR development
(Tsuji, JAXA)

2) Report on the 2nd technical workshop, monthly web meetings
(STAR program member---TBD)

3) Public relations
(STAR program member---TBD)

4) Expectations to STAR program
(Two or three speakers from STAR program participated organizations)

5) Future plan
(STAR program member---TBD)

4. Expected Outputs

1) Encouraging the STAR program team consisted by ANGKASA, GISTDA, ISRO, JAXA, KARI, LAPAN, and VAST staffs to progress the satellite cooperation in STAR program.

2) Expecting the related organizations to dispatch their staffs continuously, and providing supports such as launch opportunity, ground station operation resource, and necessary instrument